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Results of Studies with Radioactive Iodine (I^{131}) in Clinically Euthyroid Persons

	Group 1					Group 2					Group 3				
Clinical Status	Case No.	Up-take*	P.B.-I^{131}†	P.B.I.‡	B.M.R., %	Case No.	Up-take*	P.B.-I^{131}†	P.B.I.‡	B.M.R., %	Case No.	Up-take*	P.B.-I^{131}†	P.B.I.‡	B.M.R., %
Previously hyperthyroid; athyroid after surgery	1	61	0.10	5.6	+ 7	34	48	0.39	...	....	85	85	1.40	5.5	....
	2	70	0.20	5.3	0	..	..	....	...	....	..	..	....	...	....
Previously hyperthyroid; euthyroid after surgery and x-ray therapy	..	..	....	...	....	35	45	0.55	3.9	— 9	..	..	....	...	....
Previously hyperthyroid; euthyroid after surgery and I^{131} therapy	..	..	....	...	....	36	41	1.40	...	....	86	89	0.63	...	....
	..	..	....	...	....	37	45	0.40	6.3	....	87	79	1.00	5.7	....
	..	..	....	...	....	38	21	0.53	3.6	—17	88	70	1.80	6.8	+ 5
	..	..	....	...	....	39	38	1.20	4.2	— 9	89	58	1.50	5.6	0
Previously hyperthyroid; euthyroid or hypothyroid after treatment with I^{131}	..	..	....	...	....	40	30	0.40	1.6	....	90	76	0.50	4.2	0
	..	..	....	...	....	41	34	0.57	5.2	....	91	57	1.20	2.9	....
	..	..	....	...	....	42	28	1.10	...	+ 4	92	76	0.60	5.1	+10
	..	..	....	...	....	43	52	0.55	4.8	— 7	93	55	2.00	4.0	+ 9
	..	..	....	...	....	44	25	0.40	6.0	— 7	94	74	1.00	4.6	—10
	..	..	....	...	....	45	54	0.32	5.1	— 8	95	66	1.60	7.5	....
	..	..	....	...	....	46	33	0.60	7.2	0	96	75	2.50	6.4	+10
	..	..	....	...	....	47	39	0.65	3.3	....	97	57	0.50	6.6	+ 6
	..	..	....	...	....	48	26	0.51	3.5	....	98	87	0.50	3.7	— 9
	..	..	....	...	....	49	43	0.70	4.2	....	99	78	1.40	7.8	— 2
	..	..	....	...	....	50	45	1.20	4.7	....	100	55	0.42	3.5	....
	..	..	....	...	....	51	44	0.54	4.2	+20	101	56	0.36	2.5	+ 8
	..	..	....	...	....	52	34	0.70	3.7	....	102	66	2.20	2.2	....
	..	..	....	...	....	53	42	1.60	3.0	....	103	60	0.50	4.8	—12
	..	..	....	...	....	54	40	0.74	7.4	0	104	66	1.80	2.0	+ 3
	..	..	....	...	....	55	25	0.52	2.4	—11	105	73	1.40	...	....
	..	..	....	...	....	56	49	0.65	7.2	— 8	106	56	0.67	7.1	....
	..	..	....	...	....	57	23	0.41	6.5	....	107	56	0.40	4.7	....
	..	..	....	...	....	58	49	0.48	...	0	108	63	1.50	2.2	....
	..	..	....	...	....	59	38	0.70	6.6	+12	109	60	0.60	3.9	+ 2
	..	..	....	...	....	60	37	0.58	6.3	+ 8	110	62	1.30	6.9	0
	..	..	....	...	....	61	36	0.53	...	+15	111	78	1.80	6.9	....
	..	..	....	...	....	62	25	0.50	...	....	..	..	....	...	....
	..	..	....	...	....	63	43	0.30	4.4	+ 4	..	..	....	...	....
	..	..	....	...	....	64	30	0.42	2.9	—18	..	..	....	...	....
	..	..	....	...	....	65	30	1.00	7.0	+18	..	..	....	...	....
	..	..	....	...	....	66	18	0.35	7.4	....	..	..	....	...	....
	..	..	....	...	....	67	30	0.48	6.4	....	..	..	....	...	....
	..	..	....	...	....	68	27	0.68	...	....	..	..	....	...	....
	..	..	....	...	....	69	38	0.80	4.9	....	..	..	....	...	....
	..	..	....	...	....	70	42	0.46	3.8	0	..	..	....	...	....
	..	..	....	...	....	71	24	0.38	1.2	....	..	..	....	...	....
	..	..	....	...	....	72	22	0.63	2.9	....	..	..	....	...	....
	..	..	....	...	....	73	26	0.91	...	+ 7	..	..	....	...	....
	..	..	....	...	....	74	27	0.36	4.7	....	..	..	....	...	....
	..	..	....	...	....	75	37	0.60	4.7	— 5	..	..	....	...	....
	..	..	....	...	....	76	43	0.56	5.8	+11	..	..	....	...	....
	..	..	....	...	....	77	45	1.20	4.7	—16	..	..	....	...	....
	..	..	....	...	....	78	42	0.50	6.1	+16	..	..	....	...	....
	..	..	....	...	....	79	44	0.59	3.2	....	..	..	....	...	....
Nontoxic nodular goiter; no treatment	3	63	0.22	6.8	+22	80	48	0.83	7.3	— 3	..	..	....	...	....
	4	81	0.13	7.5	+ 6	..	..	....	...	....	..	..	....	...	....
	5	64	0.08	...	+ 7	..	..	....	...	....	..	..	....	...	....
	6	60	0.08	5.4	—12	..	..	....	...	....	..	..	....	...	....
	7	58	0.12	...	+ 4	..	..	....	...	....	..	..	....	...	....
	8	69	0.05	4.7	....	..	..	....	...	....	..	..	....	...	....
	9	73	0.11	6.7	....	..	..	....	...	....	..	..	....	...	....
Nontoxic diffuse goiter; no treatment	10	61	0.10	...	....	81	43	0.34	6.5	+16	..	..	....	...	....
	11	64	0.15	2.8	....	..	..	....	...	....	..	..	....	...	....
	12	66	0.03	3.8	+10	..	..	....	...	....	..	..	....	...	....
	13	63	0.14	6.6	— 8	..	..	....	...	....	..	..	....	...	....
Nongoitrous; low-salt diet	14	66	0.09	4.7	....	..	..	....	...	....	..	..	....	...	....
	15	80	0.12	4.5	....	..	..	....	...	....	..	..	....	...	....
Nongoitrous after discontinuation of propylthiouracil therapy	16	90	0.17	2.1	—11	..	..	....	...	....	..	..	....	...	....
Nongoitrous after discontinuation of thyroid extract therapy	17	60	0.10	2.3	—19	..	..	....	...	....	..	..	....	...	....
Nongoitrous; no thyroid disease	18	86	0.01	4.4	....	82	43	0.38	7.2	—15	..	..	....	...	....
	19	57	0.16	...	....	83	27	0.42	...	....	..	..	....	...	....
	20	60	0.14	7.1	+16	..	..	....	...	....	..	..	....	...	....
	21	55	0.12	...	....	..	..	....	...	....	..	..	....	...	....
	22	60	0.15	7.1	0	..	..	....	...	....	..	..	....	...	....
	23	57	0.22	...	....	..	..	....	...	....	..	..	....	...	....
	24	70	0.16	...	—11	..	..	....	...	....	..	..	....	...	....
	25	59	0.22	6.0	....	..	..	....	...	....	..	..	....	...	....
	26	57	0.19	...	+ 5	..	..	....	...	....	..	..	....	...	....
	27	63	0.19	3.8	....	..	..	....	...	....	..	..	....	...	....
	28	66	0.18	6.5	+12	..	..	....	...	....	..	..	....	...	....
	29	60	0.06	6.7	+ 5	..	..	....	...	....	..	..	....	...	....
	30	74	0.12	5.4	+ 7	..	..	....	...	....	..	..	....	...	....
	31	60	0.11	5.7	0	..	..	....	...	....	..	..	....	...	....
	32	60	0.24	6.5	+12	..	..	....	...	....	..	..	....	...	....
	33	72	0.10	6.4	— 7	..	..	....	...	....	..	..	....	...	....
1 wk. after end of thyroid extract therapy...........................						84	50	0.67	...	....	..	..	....	...	....
5 wk. after end of thyroid extract therapy...........................							36	0.30	...	....	..	..	....	...	....
9 wk. after end of thyroid extract therapy...........................							26	0.18	...	....	..	..	....	...	....
No thyroid disorder; muscular dystrophy...........................						..	..	....	...	....	112	55	0.45	5.3	—32
Recovery phase after subacute thyroiditis...........................						..	..	....	...	....	113	57	1.00	...	....

* Percentage of tracer dose in thyroid gland 24 hours after administration.
† Percentage of tracer dose per liter of plasma in washed plasma proteins 72 hours after administration.
‡ Protein-bound serum iodine in micrograms per 100 ml.

16 were clinically cured at the time of their report. Of these, one had an uptake of 62%, and four had levels of protein-bound I^{131} of more than 0.3% of the administered dose per liter of plasma. Stanbury and associates in 1952 reported I^{131} studies carried out in Mendoza, Argentina, an area of endemic goiter, under the title of "The Iodine Deficient Human Thyroid Gland." Most of the glands were very large. Uptakes of over 60% were frequent. Recant and Riggs [11] studied 11 cases of nephrosis. In two cases there were uptakes of 75 and 71% even though the basal metabolic rates were low, as were the serum protein-bound iodine values. R. Fraser reported four cases of induced myxedema following resorcinol therapy in persons with high uptakes of I^{131}.

In 1953 Hubble [12] reported on a cretin with an uptake of 61% that could not be released by thiocyanate, indicating that the iodine was bound to protein in the thyroid gland. Taylor reported on two euthyroid subjects with nodular goiters who showed uptakes of 65 and 86% in 48 hours. Burrows and Ross discussed cases of cured hyperthyroidism in patients who had abnormally high uptakes of I^{131} but showed normal uptakes when this was considered in terms of uptake of stable iodine rather than in terms of I^{131} alone. McGirr and Hutchison in 1953 studied 12 cases of "non-endemic goitrous cretinism." Two of these patients had uptakes of 75 and 77% and the accumulated iodine could not be displaced with thiocyanate. Of the 12 patients, 8 had high serum levels of protein-bound I^{131} 48 hours after administration of the tracer dose. These values varied between 0.49 and 1.12% of the administered dose per liter of plasma. Drummy [13] reported uptake studies in 493 euthyroid individuals. Fifty-six of these had large goiters, 18 had multinodular thyroids, and the remaining 38 had diffusely enlarged glands. Of 18 with multinodular goiters, one had uptake of 62%, and 10 of 38 with diffusely enlarged goiters had uptakes of from 50 to 75%. Blood levels of protein-bound I^{131} and protein-bound stable iodine were not recorded. Stanbury, Taylor, and Burrows and Ross found euthyroid patients with high uptakes.

A patient with postoperative myxedema was reported [14] with a basal metabolic rate of –20%, protein-bound iodine level of 1.3 mcg. per 100 cc., an iodine uptake of 21%, and blood levels of protein-bound I^{131} of 0.4% per liter of serum. In 1954 Morgans and Trotter [15] reported two cases studied 9 to 18 days after the discontinuance of iodine therapy to normal individuals. These patients had uptakes of 79 and 87% and had protein levels in the blood of 2.9% per liter of serum. When the same cases were restudied 25 days later all values were normal. Monroe [16] exposed rats to whole body radiation totaling from 500 to 665 r. He found increased uptake and organic binding of I^{131} one day after the x-ray exposure. These changes were no longer present at 7 or 30 days after the exposure. Hutchison and McGirr [17] observed that the uptake and binding of I^{131} in sporadic goitrous cretinism may both be high. On the basis of butyl alcohol solubility they decided the released organically bound iodine was not thyroxin, but they did not further identify it.

COMMENT

A consideration of the literature cited and the observations here recorded can leave no doubt that a not insignificant number of patients with normal or even decreased thyroid function, when studied with I^{131} tracer techniques, yield results "characteristic" of hyperthyroidism. This pitfall has two serious clinical implications already alluded to. The first is that euthyroid patients may be treated unnecessarily by surgery or with I^{131}, and the second is that hyperthyroid patients who have been adequately treated and cured of their disease may be subjected to further treatment and rendered myxedematous. It is our opinion that some of the post-treatment myxedema following I^{131} therapy has been due to the additional use of therapeutic doses of I^{131} administered on the basis of tracer studies alone without regard to the clinical state of the patient. In determining the status of a patient with thyrotoxicosis who has received one or more therapeutic doses of I^{131}, we are convinced that the best guide as to the necessity for further treatment is the clinical state of the patient. The basal metabolic rate and the protein-bound iodine (stable) of the serum are the two best laboratory aids. The I^{131} studies are the least valuable of the laboratory tests in these patients and can be most misleading.

The mechanism of these discordant results is not yet definitely established. We can conceive of several alternatives. The first is that the renal clearance of iodide has been markedly decreased. The fate of the tracer iodide is determined by the relation between the avidity of the thyroid tissue for iodide and the ability of the kidney to clear iodide from the plasma. A marked decrease in this latter function would leave more iodide available for the thyroid and could result in increased thyroid uptake. Simultaneous renal clearance studies were not made in these cases so no final answer can be given, but there certainly were no evidences of renal disease in these patients and we consider this explanation unlikely. A second possible explanation for the increased uptake could be a decrease in the total miscible iodide pool, essentially a decrease in the iodide concentration in the total body water. That this sometimes occurs is indicated by the studies of Burrows and Ross. We think that this is the most likely explanation for increased uptake in euthyroid individuals. The trapping of a given percentage of the tracer represents, as always, a trapping of the same percentage of the total miscible iodide pool. If the iodide pool is reduced, then the total amount of iodide trapped for a given percentage of tracer trapped will be lower than if the iodide pool were normal or high. The clinical state of the patient is determined by the amount of stable iodide trapped and converted to hormone and secreted. The uptake of I^{131} really represents the percentage of the total stable iodide pool trapped in the same period of time. It does not indicate the gravimetric amount of iodine trapped. It is therefore clear that high uptakes of I^{131} can be associated with normal or even decreased uptakes of stable iodide if the stable iodide pool is sufficiently reduced.

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[11] Recant, L., and Riggs, D. S.: Thyroid Function in Nephrosis, J. Clin. Invest. **31**: 789, 1952.

[12] Hubble, D.: Familial Cretinism, Lancet **1**: 1112, 1953.

[13] Drummy, W. W., Jr.: The Use of Radioactive Iodine in the Detection of Thyroid Dysfunction, New England J. Med. **249**: 970, 1953.

[14] Blom, P. S., and Terpstra, J.: High PBI^{131} Concentration in the Blood of Patients with Myxedema: Preliminary Report, J. Clin. Endocrinol. **13**: 989, 1953.

[15] Morgans, M. E., and Trotter, W. R.: Two Cases of Myxedema Attributed to Iodide Administration, Lancet **2**: 1335, 1953.

[16] Monroe, R. A.; Rust, J. H., and Trum, B. F.: Sublethal Total Body Irradiation and I^{131} Metabolism in the Rat Thyroid, Science **119**: 65, 1954.

[17] Hutchison, J. H., and McGirr, E. M.: Hypothyroidism as an n Error of Metabolism, J. Clin. Endocrinol. **14**: 869, 1954.

We think that the most likely explanation of the high blood levels of protein-bound I^{131} in these euthyroid individuals is the assumption of a reduced hormonal iodine pool in the thyroid gland. If the stored hormonal iodine (thyroxin) is reduced, then a large proportion of this pool must be drawn upon each day in order to maintain the euthyroid state. In other words, a euthyroid individual with a small hormonal pool in his gland has a rapid turnover of this pool even though only the normal amount of hormone is secreted per unit of time. Because the pool is small, the specific activity of the hormone formed and secreted after the tracer dose will be high. Therefore the protein-bound I^{131} level in the plasma will be high even though normal amounts of hormone are secreted each day. The protein-bound I^{127} level of the plasma, a good index of the concentration of circulating hormone, will not be elevated, but protein-bound I^{131} level will be elevated because of the high specific activity of the secreted hormone.

There is good evidence[18] that the lowest thyroidal hormonal pools are found in patients cured of hyperthyroidism, particularly those cured by I^{131}. The large proportion of persons with cured hyperthyroidism that appear in group 2 and 3 of this series confirms this fact and is consistent with the explanation offered above. It is interesting that in group 2 (high uptake—normal protein-bound I^{131}), only 2 of the 33 were previously hyperthyroid, while group 2 (normal uptake—high protein-bound I^{131}) had 46 previous hyperthyroid persons in 51 cases. In group 3 (high uptake—high protein-bound I^{131}), all but 2 of the 29 patients were previously hyperthyroid. The very low thyroidal hormonal pool in these cured patients is the most likely explanation for the "hyperthyroid" protein-bound I^{131} levels.

SUMMARY

Of 113 patients euthyroid during this study, 33 had radioactive iodine (I^{131}) uptakes of more than 55%, but protein-bound I^{131} levels in their plasma were below 0.3% of the administered dose per liter of plasma 72 hours after administration of the tracer dose. Of these 33, only 2 had previously had hyperthyroidism. Although 51 patients had normal uptakes, the protein-bound I^{131} levels in their plasma were over 0.3%. Forty-six of these 51 had been cured of hyperthyroidism. Twenty-nine patients had both increased uptakes and increased plasma protein-bound I^{131} levels, and all but two of these had been cured of hyperthyroidism. The possible mechanisms involved may be related to a reduced iodide pool and a diminished hormonal iodine pool in the thyroid. Awareness of these "false hyperthyroid" results with I^{131} testing will assist the clinician to avoid unnecessary treatment of normal subjects and will prevent further treatment of persons who have been cured of hyperthyroidism with resulting myxedema.

14 E. 75th St. (21) (Dr. Silver).

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[18] Berson, S. A.: Personal communication to the authors.

MEDICAL PROBLEMS OF SKIN DIVING

William T. Burns, M.D., Long Beach, Calif.

In the past 10 years since World War II "skin diving" has become an increasingly popular sport. Liberal estimates for the number of individuals participating in skin diving throughout the United States for the year of 1954 are numbered at one million. More conservative estimates number these sports divers between 250,000 and 500,000 persons. Many of the divers belong to skin-diving clubs. In California the Council of Diving Clubs list 125 clubs. Throughout the United States there are an estimated 375 clubs. The average age of the skin diver is about 20 years, with a ratio of about 90% male to 10% female divers. Self-contained underwater breathing apparatus is used by approximately one-third of the divers. Statistics to date have been difficult to obtain, and most have been based on estimates from equipment sales. In Europe skin diving is also popular and continues to increase in popularity as here in the United States. Skin diving anywhere is done principally for fun, whether it be spear fishing or exploration. Professional groups have been organized by states and by certain universities for study of marine life. Other fields, such as underwater photography, geology, salvage, archeology, and mining, are sure to take more and more divers in the future below the surface of all bodies of water to study and develop one of the last remaining frontiers.

Diving diseases and accidents formerly were very uncommon and understandably unknown to most physicians except for a few who were specially trained to cope with them in the United States Naval service. With the ever-increasing hordes of skin divers each year, diving accidents are becoming more commonplace. In California from January, 1953, through April, 1955, there has been an average of about one fatality per month. There were, of course, many nonfatal accidents, and there is obviously a need of improved safety programs for the diving public. Most urgent also is the need for the medical profession to be brought up-to-date in this field. A great deal of progress has been made to date by lay organizations to educate the public regarding the all-important matter of diving safety. Several local groups are active in this program of public education and safety. The Los Angeles County Department of Recreation has recently given a course in underwater recreation to a group of their instructors who, during the summer months, will be stationed at county beach and resort areas to further instruct divers in diving safety. The national Red Cross chapter in Long Beach, Calif., has a

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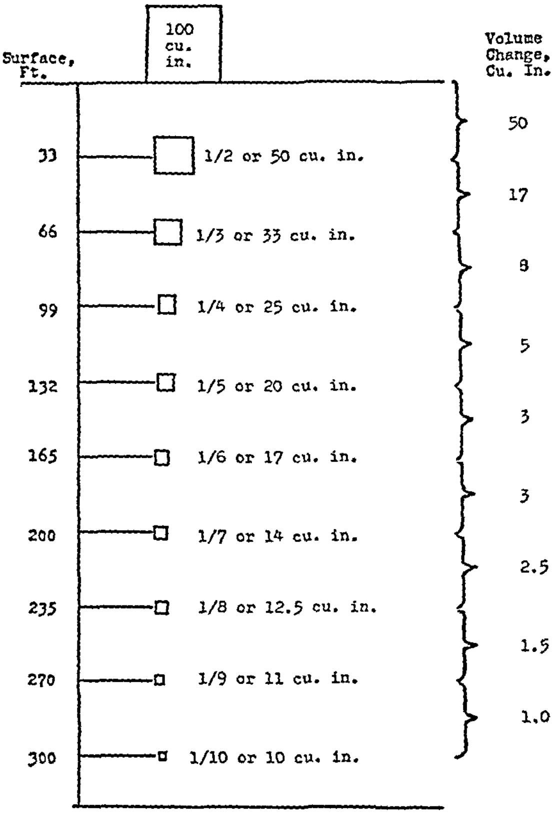
Medical Consultant, Sparling School of Deep Sea Diving, Wilmington, Calif.

special department devoted to underwater safety. They have also inaugurated a uniform method of accident reporting. In addition to these two groups, there are publications that are beneficial to those who are interested.[1]

There are distinct types of sport divers. The first type, and the one to whom the term skin diver most usually refers, is the diver who wears a face mask and swim fins and relies on the limits of his ability to hold his breath to descend below the surface of the water. This group comprises the majority of divers. The SCUBA (self-contained underwater breathing apparatus) divers are those who rely on a breathing tank of compressed air or oxygen to supply them with a sufficient amount of oxygen while submerged. This allows deeper and more extensive underwater ventures. Divers of any classification are subject immediately to various diving diseases. There are basically two types of SCUBA units. The first is the "open-circuit" type. This unit is comprised of a tank of compressed air, face mask, and an automatic demand regulator. This type of regulator assures the diver a supply of air at the correct pressure regardless of depth. Waste air is exhaled outside the unit. The other type of breathing apparatus is a closed-circuit, or rebreathing, unit that features a breathing bag and contains 100% *oxygen as a breathing medium.* The breath is exhaled into a bag; oxygen is added and then rebreathed after it has been filtered through chemicals that absorb carbon dioxide and moisture. One other type of diving, which is still used but to a lesser degree than the above types, is done with homemade diving helmets and masks to which air is supplied by an air hose from surface air compressors. The limitations of the hose, the cumbersomeness of the helmet, and the necessity of having a topside tender to assure proper function of the compressor make this type of diving less popular than the "free" or self-contained units.



Boyle's law, as applied to pressure in skin diving.

PHYSICS AND PHYSIOLOGY OF DIVING

It is essential for physicians to become acquainted in a general way with the problems of a diver's environment. Toward this understanding it is important to review Boyle's law. This law states that if the temperature is constant, the volume of a gas varies inversely with the pressure. Hence, the greater the pressure, the smaller the gas volume. At sea level the air in our atmosphere exerts on the body a pressure of 14.7 lb. per square inch, or one atmosphere absolute. For each 33 ft. below the surface of the water the pressure is increased by an additional 14.7 lb. per square inch. So likewise by doubling the pressure from surface to a depth of 33 ft., the volume of air at a depth of 33 ft. would occupy half the volume formerly occupied at the surface. At a depth of 66 ft. the pressure would be three atmospheres absolute (43.1 lb. per square inch), with the gas at that level reduced to one-third its original surface volume (see figure). Therefore at a depth of 300 ft. below the surface the pressure would be 10 atmospheres (147 lb. per square inch), with a tenth of former surface volume of gas. An important factor to recognize at this point is that at shallow depths the changes in gas volume are greater than at deeper depths. For example, going from the surface to 33 ft., a given volume of gas would be reduced 50%. A compressed gas then starting at 33 ft. doubles its volume on returning to the surface. At deeper depths, for example, going from a depth of 270 to 300 ft. there is an increase of one atmosphere (14.7 lb. per square inch) of pressure but a change in gas volume of approximately 1%. Thus the large fluctuation in gas volume near the surface is of importance in limiting a diver's compressed air supply, in equalizing pressure on eardrums and sinuses, and in recognizing and preventing air embolism.

The law of partial pressures states that the pressure of a gas mixture is equal to the sum total of the partial pressures of all the gases contained in the mixture. Also within a mixture of gases, each gas exerts a pressure (partial pressure) independent of all other gases in the mixture. In our surface atmosphere the partial pressures of nitrogen and oxygen are of greatest importance. Under the increase of pressure, carbon dioxide poisoning, carbon monoxide poisoning, oxygen poisoning, and nitrogen narcosis all appear to be related to the partial pressure of the particular gas rather than the total pressure of the air at a specific depth. The total volume of a gas that can be dissolved in a fluid is directly proportional to the absolute pressure. This factor is of importance relative to nitrogen absorption by the body during a descent into the water and the release of the gas again by the body when surfacing. If sufficient nitrogen dissolves in tissues, then on rapid ascent the gas evolves from the tissues faster than the blood stream can carry it away, bubbles can form to block capillary blood flow, producing symptoms of anoxia to the tissue supplied by the capillaries. This bubble formation is the etiological factor in caisson disease or "the bends."

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[1] Diving with Self-Contained Breathing Apparatus, prepared by E. H. Lamphier and J. V. Dwyer Jr., Special Report Series 1954, Washington, D. C., Experimental Diving Unit, U. S. Naval Gun Factory, 1954. Cross, E. R.: Underwater Safety, Wilmington, Calif., Diving Research Publishing Company, 1954.

Temperature exerts its effect on the body in the water. Ordinarily body cooling takes place by convection and evaporation. Underwater almost all heat transfer is due to conduction from the skin to the water. Cold water can produce a marked drop in body temperature unless some type of insulating suit is worn. Lower water temperatures increase the body metabolism, resulting in a more rapid use of the diver's air supply. Water density, tides, currents, and poor visibility are also factors to be reckoned with in the realm of the diver.

A more specific review of the gases in our environment should be made, since it is the effect that the above laws of physics has on these gases that makes the diver's world so different from his normal habitat. Oxygen occurs in a free state in the atmosphere, of which it forms about 20% by volume. At rest at atmospheric pressure, approximately one-fifth of the oxygen in each breath is absorbed by the body. Violent exercise may increase the amount of oxygen required 10 times over that needed at rest. Applying our gas laws to the diver's oxygen supply, it is seen that if he uses a tank of compressed air, which would supply him with enough oxygen to breathe for an hour on the surface, at a depth of 33 ft. of water the volume of the gas available in the compressed air tank would be one-half; hence it follows that he will have one-half (30 minutes) the air supply at this depth, all other factors remaining constant. If the diver descends to 66 ft., the volume of gas available will be a third that at the surface and would supply the diver with 20 minutes of breathing. Vigorous exercise or cold water temperatures may also further limit the compressed air supply. It is important to plan a dive ahead of time so as not to stay too long at a particular depth and exceed the available oxygen supply. Oxygen lack deadens the faculties, and loss of consciousness may occur quickly before a person realizes what has happened.

Nitrogen, by way of review, comprises about 79% of our air supply. At atmospheric pressure nitrogen has no effect on the body except to serve as a diluent for oxygen. Under pressure nitrogen has two important effects on the body. A narcotizing effect occurs at about four atmospheres absolute (approximately 100 ft.). The effect is similar to the euphoria occurring with alcoholic intoxication. At depths of 300 ft. (10 atmospheres) this is to such a degree as to make attempts to accomplish work impractical. Nitrogen, as the pressures of increasing depths are reached, continues to dissolve in the body tissues. Nitrogen dissolves in fatty tissues to a marked degree. The ratio of fat to water solubility is approximately 5:1. Hence, it is easy to see that with an excess of fat in the body there is an increased ability for the body to retain nitrogen and also an increased tendency for an obese individual to be more susceptible to caisson disease.

Another gas of our normal environment is carbon dioxide, which is known as a natural product of respiration. It comprises about 0.04% of the normal air. Concentrated by low temperatures, increased pressures, and inadequate ventilation, carbon dioxide builds up. When the amount in inspired air reaches 5%, panting occurs; 8% produces increased respiratory distress; 10% produces loss of consciousness. Warning signs of excess carbon dioxide are panting, fatigue, headache, dizziness, and nausea. Symptoms of carbon dioxide poisoning do not occur in "open-circuit" breathing apparatus described above because exhaled air is blown outside the diver's mask. With a homemade helmet or mask carbon dioxide increases can quickly occur if insufficient air is allowed to circulate through the helmet or mask. The above laws of physics and facts concerning the gases of the diver's atmosphere are presented to briefly show the physician's reasons for the importance of safety in diving and the importance of good health for the participants.

PHYSICAL REQUIREMENTS FOR DIVING SAFETY AND COMMON ACCIDENTS

On a health examination the following points are of great importance, and here is where the family physician can serve best to prevent accidents. Perfect health is mandatory. The ideal type of individual is young, slender, and composed and with good vision. Obesity is a definite hazard, as fat tends to retain nitrogen. Since most obese individuals are usually out of condition, they are more prone to exhaustion. Exhaustion is one of the most common hazards to a diver. If treading through water is compared to continuously walking up stairs, it is easy to see that an individual must be in good condition to participate for any period of time. It becomes obvious that any type of chronic illness, such as arthritis, chronic otitis media or sinusitis, heart disease, asthma, syphilis, and chronic gastric intestinal disturbances, is apt to prove disastrous to a diver. Any nervous tendencies in an individual should prompt a physician to discourage him from diving. Nervousness and panic accelerate one's metabolism and prevent clear thinking in situations where cool-headed thinking would otherwise prevent an unnecessary accident. Since most divers dive in teams, the frightened, nervous, or panicky individual can jeopardize the lives of others who may find it necessary to go to his assistance. Incidentally team diving is encouraged, and many times a diving buddy has been the one to assist an exhausted or frightened diver to the surface and safety. A prospective diver should, of course, know how to swim and be at home in the water.

Clean living habits, adequate rest, and plain simple diets are to be encouraged. The effects of cigarettes and alcohol are well known, and the obvious circulatory retardation imposed by them can be dangerous to divers. Individuals who tend to have excess intestinal gas or are prone to constipation should also be discouraged from diving. Head colds are particularly detrimental in diving and may decrease pressure toleration on sinuses and ears. If eustachian tubes are sufficiently edematous so
as to prevent equalization of pressure on the eard
rupture of the drums can promptly ensue wit
10 lb. of pressure. Under pressure an ind
force infected mucus into the mi
lungs, with resulting infection
tion.

CAISSON DISEASE

Caisson disease can occur when a sufficient amount of nitrogen has dissolved in the body tissues and is then followed by a rapid release of pressure. Bubbles form first in the blood stream in areas of poor circulation such as joints, bones, or fat. Mechanically these bubbles occlude a blood vessel and cause tissue anoxia beyond the point of occlusion by the bubbles. Mild symptoms consist of skin itching and pain in joints, tendons, or muscles. Symptoms occur from a few minutes after surfacing up to as long as 15 hours after surfacing. Sometimes the onset of symptoms begins before the diver reaches the surface. Serious symptoms are those of dizziness, vomiting, visual disturbances, and paralysis. Loss of consciousness and death can follow in serious cases. Treatment consists of immediate measures to combat shock; give sedation for pain and to get the patient to a recompression chamber as promptly as possible (see table). Practically every coastal area is within an hour or two of a recompression chamber. Contacting the U. S. Coast Guard will get any physician in touch with the nearest available treatment facilities. Recognizing caisson disease, giving any necessary emergency treatment, and getting the patient on the way to the nearest recompression chamber are the ways we can best serve those stricken with this disease.

Differential Diagnosis for Diving Diseases

Disease	Etiology	Symptoms and Signs	Treatment
Mild caisson disease	Diving in excess of 40 ft. for prolonged periods	1. Onset usually few minutes to 15 hr. after surfacing 2. Pain in joints (knee, elbow, and spine) 3. May have itching or mottling of skin 4. No tenderness, swelling of joints as in sprain	1. Sedation for pain 2. Recompression in chamber as promptly as possible ....
Severe caisson disease	Same as above	1. Onset may occur before reaching surface and up to 15 hr. after surfacing 2. Joint pain as above 3. Vertigo, vomiting, visual disturbances, paralysis, and coma	1. Sedation for pain 2. Emergency treatment for shock 3. Prompt recompression
Air embolism	Diving in excess of 6 ft.; no tissue saturation necessary	1. Symptoms usually occur within few minutes after surfacing 2. May expire before reaching surface 3. Symptoms of severe caisson disease above 4. May show spontaneous pneumothorax	1. Sedation and treatment for shock 2. Artificial respiration and oxygen inhalation 3. Recompression as quickly as possible ....
Asphyxia (carbon dioxide poisoning or drowning)	Accumulation of carbon dioxide, by loss of breathing apparatus, exceeding air supply	1. Panting, fatigue, vertigo, and nausea 2. Convulsions, coma, and apnea 3. Cyanosis	1. Prompt surfacing 2. Artificial respiration 3. Oxygen or carbogen inhalation 4. Treatment for shock
Carbon monoxide poisoning	This gas is a contaminant of the compressed air supply	1. Severe headache 2. May develop fatigue, vertigo, nausea, general uneasiness, coma, and apnea 3. Cherry-red skin, nail beds, and mucosa	1. Surface and remove breathing apparatus 2. Artificial respiration 3. Oxygen inhalation 4. Shock measures
Oxygen poisoning	Breathing pure oxygen under pressure	1. Symptoms of bronchial irritation, vertigo, emotional disturbances, and muscle twitchings 2. Severe convulsions may occur	1. Prompt reduction of pressure 2. Sedation and antispasmodics if convulsions persist

Caisson disease rarely occurs at depths less than 40 ft. Divers using a single tank of compressed air are so limited as to time at depths in excess of 40 ft. that they are not prone to develop the "bends." The difficulty, however, is that ever-increasing numbers of divers are using multiple tanks of compressed air to prolong the time they can stay at deeper depths. To add further to this danger Comp[illegible] divers will have a total of four to six tanks of air with them on a particular trip. It is not unusual for them to make two or three dives during a single day without allowing time for decompression during any of their ascents to the surface. It should be noted at this point that the danger of several dives during a single day lies in the fact that a subclinical amount of gas may remain dissolved in the tissues for several hours after an ascent from a single dive. If a diver makes another dive before the gas dissolved in his body from the first dive is completely eliminated, he retains this dissolved gas (nitrogen) and adds to it on the second and third dives. Thus even though a single dive was not of sufficient duration to allow enough tissue saturation to produce the "bends" on surfacing, the succeeding additions of gas dissolved in the tissues can add enough nitrogen for bubble formation. This is particularly apt to be facilitated by obesity, overfatigue, or diving in extremely cold water.

Actual instructions in treatment in the recompression chamber is purposely omitted at this time, but it is hoped that more doctors will become interested enough in the future to warrant a paper devoted primarily to this phase of caisson disease.

OTHER HAZARDS

Air Embolism.—Air embolism occurs when a diver using an underwater breathing apparatus ascends toward the surface holding his breath. As he ascends, the compressed air in his lungs must expand. The expanding air then may rupture alveoli and blood vessels and allow air bubbles to flow rapidly into the pulmonary circulatory system. The bubbles can quickly collect in the left chambers of the heart, occluding the circulation to the great vessels with sudden asphyxia and death. Symptoms can occur from depths as shallow as 7 ft. The symptoms usually occur promptly after surfacing, almost always within 10 to 15 minutes but may occur before reaching the surface. They are symptoms of a serious case of caisson disease. Spontaneous pneumothorax may also occur. Emergency treatment consists of absolute rest with head down, artificial respiration, carbogen or pure oxygen inhalation, general treatment for shock, and recompression as promptly as possible.

Oxygen Poisoning.—Oxygen poisoning is a proved condition that occurs in some individuals when pure oxygen is breathed under pressure. As mentioned above, there are some self-contained units that use oxygen and a rebreathing closed-circuit system. Some people under pressure, who tolerate oxygen poorly, will develop toxic symptoms that can occur in depths as shallow as 33 ft. Symptoms are those of nausea, bronchial irritation, dizziness, emotional disturbances, muscle twitching, and convulsions. The symptoms can become more severe with increasing pressures. The treatment consists simply of reducing the pressure (surfacing) generally with prompt subsiding of symptoms. Convulsions can continue for several hours after surfacing. Use of pure oxygen as a diver's air supply is dangerous and should be discouraged.

Carbon Monoxide Poisoning. — Carbon monoxide poisoning can occur when a diver's air supply becomes contaminated with exhaust fumes. The source of contamination occurs when gasoline-driven compressors, used by manufacturers, are improperly vented. The exhaust fumes are included with the compressed air. Thus a diver inhales increased concentrations of carbon monoxide as he descends below the surface. The ratio of affinity of carbon monoxide and oxygen for hemoglobin is approximately 300.1. Under the increased pressures and higher concentrations of carbon monoxide typical symptoms of carbon monoxide poisoning occur. These are severe headache, fatigability, dizziness, faintness, general uneasiness, and loss of consciousness. As contrasted to the cyanosis of the asphyxiated individual, the unconscious victim of carbon monoxide poisoning shows a cherry-red appearance of the skin, mucous membranes, and nailbeds. Emergency treatment consists of surfacing, removing the contaminated source of air, administering artificial respiration, oxygen inhalation, and the usual measures for combating shock.

Psychological Hazards.—Psychological hazards are important among the medical hazards of shallow water SCUBA diving. An individual who is afraid of the water, perhaps a poor swimmer, and is alarmed by the experience of underwater diving is not likely to be calm or resourceful in event of an emergency. A good diver is neither overfearful nor audacious, but careful, foresighted, and calm in the face of difficulties, including panic among others. Unstable individuals should be discouraged from participating in SCUBA diving.

SUMMARY

Skin diving with use of self-contained underwater breathing apparatus is increasing as a popular sport. A public safety program is felt to be mandatory. Through a study of physics and physiology of diving, health qualifications for divers, and diving accidents and diseases, physicians will play an important role in the field of diving safety.

925 E. San Antonio Dr. (7).

COMPLICATIONS FOLLOWING SURGERY FOR BENIGN ANORECTAL LESIONS

Raymond E. Anderson, M.D., Guy V. Pontius, M.D.
and
Leon J. Witkowski, M.D., Chicago

In spite of the fact that a certain degree of standardization of the surgical treatment of benign anorectal disease has evolved during the past decade, postoperative complications still occur too frequently. These are not due to neglect of the underlying technical principles of this type of surgery but rather to a disregard of the refinements in technique and attention to details in the surgical procedure and during the postoperative period. Although there may be minor variations in methods in various surgical centers, we do not believe that these are a significant factor in the incidence of postoperative complications. It is our opinion that adherence to the basic principles concerning the anatomy and physiology of the anorectal region will minimize or eliminate the high incidence of complications that unfortunately still occur. Other writers have reflected this opinion also, and, while it is undoubtedly true, it has tended to draw attention away from the cardinal necessity of developing clear-cut concepts relative to the early recognition and treatment of an abnormal postoperative state. No one can deny the importance of avoiding trouble by performing a technically perfect operation, and it is probably for this reason that little consideration has been given to the problem in the literature.

Postoperative complications are not only embarrassing to the surgeon but they are also annoying or even disabling to the patient. The fear and apprehension that surround dysfunction of the anorectal mechanism are especially acute in the postoperative period, and the prolonged convalescence that follows unrecognized or improperly treated complications places a distracting psychological burden on the person facing such an ordeal. Failure to correct decisively an adverse postoperative course in both its physical and its emotional components produces a patient who is not only despondent and filled

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From the Fourth Surgical Service, St. Luke's Hospital, and the Department of Surgery, Northwestern University Medical School.

with misgivings but also skeptical and resentful at the outcome of his surgery. There is probably not another physiological function of the human body that is the object of more direct and indirect emotional attention than that of defecation. When it begins to appear in the patient's mind that some alteration in the normal experience of that act may result from the surgery that was explained to him as treatment of a benign condition, the pattern is created for certain anxiety and mistrust. With these thoughts in mind and assuming that occasional complications will occur even under the best of circumstances, we have endeavored in this discussion to draw from our own experience in the surgical treatment of approximately 5,000 cases of benign anorectal disease and to evaluate those factors that lead to complications in the postoperative period. We have accepted one or more of the following circumstances as being complications when normal recovery is retarded either by preventing the well-being of the patient or by altering restoration of anatomic or physiological function of the anorectum: (1) fecal impaction, (2) hemorrhage, (3) excessive pain, (4) infection, (5) outlet stenosis, (6) incontinence, (7) mucocutaneous fistula, (8) alteration of mucocutaneous junction, (9) pruritus, and (10) anal ulceration.

FECAL IMPACTION

Although the development of a hard mass of fecal material in the rectal ampulla is one of the most common and distressing complications that may occur in the postoperative period, it is often overlooked by the attending surgeon and members of the house staff. The presence of a bolus of stool in the lower rectum leads to pressure and congestion in the anal outlet, with a resulting increase in pain and spasm. There is no doubt that an accumulation of feces, mixed with blood and serum, offers an ideal medium for the growth of intestinal bacteria. This stagnating mass is excessively irritating to the healing surfaces of the mucosa and skin. Thus, the presence of congestion and edema, combined with infection, results in extreme discomfort to the patient as well as actual retardation of healing. It is a simple thing to determine whether or not an impaction is present by merely placing a finger into the rectum. One is easily misled, however, by the patient, suspected of having an impaction, who states that his intestine is emptying each morning. It must be emphasized that defecation may occur despite the presence of a hard shell of impacted feces above the anal outlet. Even a rectal digital examination is not foolproof and may be deceiving when there is a great deal of pain and spasm present. It is exceedingly difficult to explore the rectal ampulla thoroughly in these people, and because of this, a peripheral impaction may be overlooked. The administration of an opiate to obtain the cooperation of the patient may be essential to a proper examination if there is a possibility that an impaction is present.

All of our patients who suffer from anorectal disease are given a complete examination prior to surgery, which includes a proctosigmoidoscopic examination and, in most instances, an x-ray of the colon. Taking this x-ray within four or five days before the date set for surgery is unwise, because it requires at least this long to completely evacuate the barium from the colon. Any barium that remains in the large intestine at the time of operation adds to the risk of developing impaction. The simplest and least traumatic way to remove the inspissated stool is to use digital pressure to break up the mass, followed by liquid petrolatum (mineral oil) and saline enemas. Recently we have been using Phospho-Soda (aqueous solution of sodium biphosphate and sodium phosphate) in place of the saline solution, with satisfactory results. Sedatives are liberally administered before this procedure is carried out, and the procedure is repeated daily until the impaction is entirely removed. The use of hydrogen peroxide and other harsh or irritating substances should be strictly avoided. After removal of the impacted stool, the patient must be carefully observed for evidence of bleeding, for, regardless of how gently and cautiously the procedure is carried out, there is danger of opening recently ligated vessels. The application of an anesthetic ointment and hot, moist compresses has proved to be the best means of relieving the immediate pain that the patient experiences, and, in most instances, within a few hours there is complete relief of all discomfort.

HEMORRHAGE

Most important of the early postoperative complications following anorectal surgery is hemorrhage, for, unless its presence is recognized early and treated promptly, the welfare as well as the life of the patient is in jeopardy. Procrastination is inexcusable, and anything less than specific treatment directed at the exact source of the bleeding is unjustifiable. The unsound idea that all rectal bleeding will stop by placing a pack in or on the anal outlet and tightly strapping the buttocks together, or the false sense of security obtained by assuming that as the patient's systolic blood pressure drops the bleeding will subside, are without foundation and, if practiced on all patients who bleed postoperatively, will lead to disastrous results. While it is true that this method of treating rectal bleeding will control a certain number of the cases, it is advisable to search thoroughly for the source of the bleeding and then, having found its origin, carry out the proper therapy according to a specific rational plan.[1] The means by which bleeding may occur and the proper treatment for each type are summarized below.

Skin Bleeding.—The proper surgical treatment of most benign anorectal lesions calls for the removal of an adequate amount of skin in order to insure proper drainage and healing. This results in a denuded area that will frequently ooze and bleed from small capillary channels for some time postoperatively, a situation that may be quite alarming to both patient and surgeon at times. Occasionally the trauma of the passage of a stool, an enema tip, or the examining finger will dislodge a protecting clot or ligature on a vessel in the skin edge, resulting in fresh bleeding that fails to stop of its own accord. It is this type of external hemorrhage from small blood vessels that will respond well to the application of dry sterile absorbent gauze, with pressure and is not a very serious problem. When this manner of bleeding persists, however, *a thorough investigation of the patient's blood-clot-*

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[1] Cantor, A. J.: Anorectal Surgery: Preoperative and Postoperative Care, Am. J. Proct. 3: 222-226 (Sept.) 1952. Miller, D.: Surgical Emergencies of the Anorectum, Postgrad. Med. 7: 251-252 (April) 1950.

ting mechanism should be undertaken and immediate steps taken to correct any abnormalities that may be detected.

Bleeding from External Sphincter.—All components of the external anal sphincter are supplied with many small branches of the inferior hemorrhoidal artery. Whenever the sphincter is manipulated or incised during the course of an anorectal surgical procedure, arterial bleeding may therefore be incurred, and, if the bleeding is unrecognized at the time of surgery or activated in the postoperative period, a rapid and serious blood loss will result. If at any time there develops a continuous passage of bright red blood from the anal canal, immediate examination should be undertaken. This type of bleeding, we feel, warrants taking the patient to the operating room, where the proper facilities are available. A topical anesthetic such as dibucaine (Nupercaine), 1%, may be applied to the anal canal prior to the examination. If, however, one is unable to examine the area thoroughly with this simple analgesia and positively identify the source of the hemorrhage, the sphincter and perianal skin is infiltrated with a 1% procaine solution until proper relaxation is obtained. When the offending vessel is found, it is clamped and securely ligated with 00 absorbable surgical suture. No other packing or hemostatic agent is placed in the anal canal.

Internal Bleeding.—Although a moderate amount of bleeding may be expected after most surgical procedures in the anorectal region, the passage of large clots of dark blood, associated with other signs of blood loss, is obvious evidence that hemorrhage has taken place. The rich plexus of hemorrhoidal veins and arteries allow such bleeding to be a serious affair, and valuable time may be lost by indecision. If vascular shock is present or impending, whole blood should be given immediately and preparations for an exploration of the area made in the operating room. When the bleeding is vigorous and the administration of 500 cc. of whole blood does not alter the blood pressure or pulse, a rectal pack as described by Rolens[2] may be placed in the ampulla for temporary tamponade. When the patient is out of shock and able to tolerate an anesthetic, he is transported to the operating room, where a general anesthetic is given. The sphincter is dilated gently, and a search is made for the bleeding vessel. When found, it is suture-ligated with 0 absorbable surgical suture, and no other hemostatic agent is used. There are occasions, and these are fortunately quite uncommon, when the exact source of the hemorrhage is hidden in a subcutaneous or submucosal hematoma, thus making it impossible to ligate a particular vessel. In such an instance, a dumbbell pack may be inserted in the lower ampulla and anal outlet for hemostasis. This packing is left in place for 48 to 72 hours, depending on the severity of the bleeding, and is then cautiously removed after the patient is sedated. A low-residue diet is given to the patient for several days after its removal.

Postoperative bleeding is often an unforeseen mishap, but, by keeping in mind several practical surgical principles, its likelihood may be minimized a great deal. The ligation of hemorrhoidal veins cephalad enough to obliterate the main channel is essential, and the use of a running, locking suture over the hemorrhoidal bed, after the fibers of the external anal sphincter have been carefully dissected away from the overlying tissue, has proved to be the best method of insuring closure of the collateral vessels. Arteries are always individually clamped and ligated. Before any suture or ligature is cut, the strands are relaxed in order to insure that the knot, rather than the tension, has controlled the bleeding. The entire area is inspected at the completion of the operative procedure, and, except to control the external skin edge oozing, pressure packs are not relied upon to produce hemostasis.

EXCESSIVE POSTOPERATIVE PAIN

The etiology of excessive postoperative pain is often obscure and difficult to evaluate because of the frequent interrelationship of functional and true organic elements in its pathogenesis. Tolerance to pain will vary greatly among people, and factors such as fear, insecurity, apprehension, and fatigue may each contribute in some measure to lowering the individual's threshold to pain. We have been impressed with the number of times the psychosomatic manifestation of extreme postoperative pain has had its origin in the fear of malignant disease, and we have often utilized practical bedside psychotherapy with much success in patients who appeared to be suffering from severe and agonizing postsurgical distress. Cooperation and confidence on the part of the patient is often of much more value in the relief of pain than the administration of large doses of the opiates or the injection of the long-lasting anesthetics. There are, however, a number of organic reasons that may account for unusual pain postoperatively, and undoubtedly the majority of these are due to faulty technique at the time of surgery.[3] Clinical experience has verified the correlation between the amount of postoperative pain and the degree of trauma in the anal outlet that the operation requires. Nevertheless, this factor alone is not solely responsible for the development of unusual pain following anorectal surgery. An equally important evaluation would undoubtedly demonstrate the parallel relationship between the amount of distress and the errors in judgment as to that technical undertaking of the surgery. The more important of the factors that may lead to trouble are discussed below.

A factor such as failure to remove an adequate amount of skin distal to the mucocutaneous line results in the presence of edematous and congested tags of tissue that are rich in somatic nerve endings and that interfere with the proper drainage of the operative bed. Inflammation may rapidly develop under such circumstances and add to the pain experienced by the patient. Removal of an excessive amount of skin in the anal canal and outlet or in the perianal margin denudes the external anal sphincter and allows direct irritation of the very sensitive fibers of this muscle. Constriction occurs, and the vicious cycle of pain, spasm, and improper healing begins. Although under voluntary control, the external anal sphincter is one of the most excitable and responsive muscles in the body, and inflammatory or mechanical trauma to its fibers, in addition to being extremely painful, will cause violent and sustained contraction to occur. A high percentage of cases of severe postoperative pain have their origin in sutures and ligatures that are improperly placed about the anorectal area. The external anal sphincter must always be carefully dissected away from the overlying skin, and care must be taken to prevent piercing of the muscle by placing the surgical suture too deeply. Direct vision and palpation are probably the best methods of avoiding this pitfall, and the mass clamping of excessive tissue with bulky ligation can only lead to distress. Although it is not a widely advocated or accepted procedure, there are some surgeons who feel the introduction of an anal pack or plug is necessary for hemostasis after anorectal surgery. It has been our experience that such a procedure invariably results in considerable discomfort and actually does little to promote hemostasis if careful identification and ligation of bleeding vessels is carried out during the course of the operation. A small, soft rubber catheter, placed into the ampulla for 48 hours to allow the escape of gas and facilitate the introduction of a liquid petrolatum enema on the second postoperative day, is the only type of foreign body that we feel is justified. Infection and fecal impaction are common causes for pain, but, since they are discussed elsewhere in this paper, they need only be listed here.

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[2] Rolens, M. E.: Control of Hemorrhage Following Anorectal Surgery, Am. J. Surg. 81: 28-30 (Jan.) 1951.

[3] Elkins, R. F.: Pre- and Postoperative Care in Proctology, South. M. J. 46: 182-184 (Feb.) 1953.

From the observation of the above-mentioned factors, it becomes clear that there is certainly no panacea for the relief of postoperative pain, with the possible exception of administering massive doses of the opiates, during a time when some corrective healing will naturally occur. This, obviously, is not following the principles of sound surgical therapeutics, and it therefore becomes necessary, when one or more of the above-mentioned circumstances is found to be responsible for an excessive amount of pain, to direct one's attention and energy to its eradication. When examination of the area is carried out, it should be kept in mind that somatic innervation reaches only to the mucocutaneous line, and, with the exception of the feeling of fulness, distention, and congestion, severely painful sensations will not originate above this point. The source of the pain, therefore, is not difficult to determine and, when located, should receive active treatment until it no longer remains a focus of irritation.

We have found that for those persons in whom edematous, swollen perianal skin is the basis for discomfort, the use of warm, hypertonic saline packs or salt water sitz baths serves best to relieve the congestion. When the converse is true and excessive skin has been removed, with exposure of the external anal sphincter, liberal use of a 1 or 2% aqueous solution of merbromin (Mercurochrome), which is applied twice daily, acts as a soothing antiseptic that also stimulates rapid epithelization of the defect. Topical anesthetic agents may also be applied, but evidence of local irritation or maceration of the perianal skin should indicate their withdrawal. Infection in the anal outlet or along the suture lines is best handled by the same methods that are used for an infection anywhere else in the body, namely, the application of hot compresses, the administration of the antibiotics or chemotherapeutic agents, and the assurance of adequate drainage. It must be emphasized that a number of the orally administered antibiotics are notorious for the way in which they lead to the development of proctitis or perianal irritation, and, for this reason, it is probably less hazardous to give this type of medication by the parenteral route.

Sutures or ligatures that have penetrated into the sphincter muscle present a difficult problem, which is probably best handled by the local use of anesthetics and the administration of narcotics, until the time when the offending strand can be removed. Contrary to the opinion of some proctologists, we believe that frequent postoperative digital dilations of the anal canal that break up adhesions and prevent sealing of skin edges are helpful in assuring better healing, promoting more adequate drainage, and lessening spasm and irritability of the anal sphincter.[4] We have seen a number of patients in whom disabling postoperative pain has arisen from no other source than an extremely spastic muscle and who have responded dramatically to frequent anal dilations.

For those persons who do not respond to any of the above methods of treatment or in whom pain persists, despite inability to locate an exact source of the distress, either functional or organic, we have resorted, on occasion, to the injection of the so-called long-lasting anesthetic agents. Our enthusiasm for this form of therapy has never been great, for the untoward side-effects that may develop following their use are often more annoying than the condition for which they were utilized. Superficial necrosis, deep abscess formation, local itching and urticaria, and the possibility of systemic reaction are some of the reported and personally observed complications that occur. Nevertheless, the application of long-lasting anesthetic agents to the problem of excessive post-surgical pain is acceptable and often yields gratifying results when all other forms of therapy have failed.

INFECTION

The anal outlet and lower rectum, rich in vascular and lymphatic channels and surrounded by loose areolar tissue, are susceptible to infection in a variety of ways. It is remarkable indeed that in this area, serving as a passageway for the elimination of waste products, containing uncountable millions of bacteria from the intestinal and upper respiratory tract, violent infections are not more frequently encountered after surgical trauma. In all probability there is a certain degree of local tissue immunity that offers resistance to growth of pathogenic organisms, but it is unlikely that this factor alone can protect the patient from developing postoperative sepsis. More fundamentally important is the avoidance of infection by providing at the time of surgery adequate drainage of the traumatized and susceptible area, a principle understood and utilized by proctologists for a great number of years. By establishing free drainage, potentially virulent bacteria, together with their toxic products, blood, serum, and necrotic tissue, pass to the outside and thus are rendered harmless. Contamination is confined to the superficial layers, and involvement of the deeper structures by invading organisms is prevented.

It is logical, therefore, that the inability of the surgical area to drain properly, either because of the blockage of already developed drainage ways by congestion or edema about the anal outlet or because of failure of the surgeon to originally provide sufficiently wide radical incisions for the exit of bacteria, is the most common cause for postoperative infection about the anorectum. Other etiological factors include the inoculation of pathogenic organisms into the deeper tissue by the passage of sutures or improperly placed and buried ligatures; examination or manipulation in the postoperative period with dirty instruments or gloves; irritation, inflammation, and direct invasion of the area by unusually potent diarrheal-producing intestinal or respiratory bacteria; and cutaneous allergy to locally applied antiseptics, anesthetic agents, or foreign materials, followed by diffuse inflammation.

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[4] Pontius, G. V.: Treatment of Fissure, Hemorrhoids and Fistula in Ano, S. Clin. North America 23:255-290 (Feb.) 1943.

Postoperative anorectal infections may be of several types. The manner in which the responsible organisms are introduced and the nature of the bacteria, of course, determine largely the way in which the infection manifests itself, although such factors as bacterial synergy, availability of culture mediums, and local environmental conditions may also be important. The most common offending organisms are Escherichia coli, Pseudomonas aeruginosa, Proteus vulgaris, and the micrococci and streptococci.[5] Mixed infection is more apt to occur than invasion by a single strain of micro-organisms. Anorectal infection has been classified and analyzed by a number of workers,[6] and it is not our intent at this time to reevaluate the various types of inflammatory processes that may occur in this region. From a surgical viewpoint, however, it is important to point out that the majority of postoperative infections begin either at the anal margin, at the posterior triangular space (Minors), or at the mucocutaneous line, when disruption of its junction results from faulty surgical approximation. The type of infection may range from a simple circumscribed tegumentary involvement to a diffuse, ascending cellulitis or massive ischiorectal or perianal abscess formation. The symptoms and signs of anorectal infection follow the same pattern as those that become apparent in response to an infectious process elsewhere in the body. Chills, fever, and malaise develop early and may be extreme. The latter manifestation, we feel, is quite important in anorectal sepsis, for it probably indicates hepatocellular dysfunction, resulting from the release of septic emboli and toxic products into the portal circulation. Local reaction leads to pain, burning, pruritus, and, quite frequently, tenesmus and dysuria.

Examination should be carried out only after sedatives have been liberally administered. Digital exploration may fail to locate the point of infection, and, if there is any question as to the exact nature of the process, the attending surgeon should not hesitate to insert an anoscope or proctoscope in order to determine the character of the lesion. Treatment consists in application of the principles used to combat infection wherever it may occur. Rest, assurance of a proper state of hydration, adequate vitamin intake (especially that of vitamin C), and the administration of the proper antibiotic or chemotherapeutic agent are vitally important. Local therapy is directed toward increasing the vascularity by the application of hot compresses and by the reestablishing of free drainage. When localized abscess formation is discovered, incision is necessary, whether the fluctuation is at the anal margin or above the mucocutaneous junction.

However insignificant the abscess may appear, it is best not to attempt surgical drainage unless proper equipment and lighting are available. These are usually found in the operating room or office primarily arranged to care for patients with rectal disease. Thiopental (Pentothal) sodium given intravenously and combined with 1% procaine solution injected locally has proved to be an excellent anesthetic to use when dealing with this problem, although one must use extreme caution to prevent the dissemination of the infection by introduction of the needle through diseased tissue into healthy tissue. Frequent postoperative digital dilations of the anal outlet are probably the best insurance against faulty drainage, and this procedure is one of the most satisfactory ways to reestablish drainage if infection develops. Rapidly healing skin edges that block exit pathways are spread open, mucocutaneous pockets or sinuses are uncovered, and granulating shelves of tissue are broken down. The intensity of the infection governs the frequency with which the procedure is carried out; if it is repeated every three to five days, however, drainage is assured, healing progresses properly, and the period of convalescence is shortened considerably.

OUTLET STENOSIS

An abnormally narrow opening of the anal canal after surgery for benign anorectal disease may be the result of either removal of an excessive amount of skin without allowing a bridge of epithelium to remain between segments so removed or postoperative infection or inflammation at or below the anorectal junction. In either condition, however, the pathogenesis of the process leading to the stenosis is identical and consists of the deposition of fibrous scar tissue, which replaces the normal tegumentary structures, thus drawing the anal outlet into a fixed and inelastic aperture. Although Bacon [5] has described fibrous trabeculations extending into the superficial fibers of the external anal sphincter, which probably help anchor the scar tissue to the underlying structure, the essential process does not involve the muscle bundle itself. The voluntary and involuntary activity of the sphincter remains intact, but, as a consequence of its being trapped by the core of scar tissue, its ability to dilate in response to the passage of a stool is prevented.

Inflammatory conditions or infection may, in addition to initiating slough and scarring, involve the pectineal fascia, and fibrosis of this structure will eventuate in contracture and compromise in the lumen of the anal canal. Whitney,[7] Abel,[8] and others have given excellent descriptions of this phenomenon and have done much to clarify the importance of the pecten layer. Pain is an important symptom of anal stenosis but is not as commonly experienced as one would suspect. Evidence of outlet obstruc-

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[5] Bacon, H. E.: Anus, Rectum, and Sigmoid Colon: *Diagnosis and Treatment*, ed. 3, Philadelphia, J. B. Lippincott Company, 1949.

[6] Turell, R.: Hemorrhoidectomy, with Special Reference to Open Versus Closed Technics, S. Clin. North America **32**: 677-686 (April) 1952. Bacon.[5]

[7] Whitney, E. T.: Posterior Sphincterotomy, Am. J. Surg. **75**: 761-771 (June) 1948.

[8] Abel, A. L.: The Pecten: The Pecten Band: Pectenosis and Pectenotomy, Lancet **1**: 714-718 (April 2) 1932.

tion, as manifested by the necessity to strain during defecation, tenesmus, the passage of ribbon-like stools, and the sensation of incompletely evacuating the large intestine, have been just as frequently encountered in our experience. Cathartics are used uniformly and are often the only means by which the patient can affect a bowel movement. Diagnosis is, in the majority of the cases, established by a careful digital examination of the anal canal, but, in those persons who have an extremely irritable external anal sphincter, it may be necessary to obtain anesthesia before an accurate evaluation of the degree of narrowing can be elicited. Fibrosis and scarring may involve the entire circumference of the anal outlet or only a segment of the wall may be involved. Certainly the most common level is at the mucocutaneous line.

As we have emphasized in some of the preceding paragraphs, we believe that frequent postoperative digital dilations of the anal outlet will prevent too rapid healing of the skin and junctional tissue, and, by thus allowing a certain degree of epithelization to occur, induration will be minimized. As elsewhere where scarring occurs, stretching and massaging aids in softening and relaxing the fibrous bands. In the event that contracture has already developed, it becomes necessary to allow sphincteric relaxation by incision of the binding ring of tissue producing the stenosis. When the stricture involves the lower anal canal below the pectineal line, the best results are obtained by producing several radial incisions, deep enough to completely sever the fibrous ring but never so radical as to involve the underlying fibers of the sphincter ani. No attempt should be made to dissect away a portion of the scar, nor should undermining or removal of wedge-like masses of tissue be undertaken, for, in so doing, the increased trauma leads only to increased hemorrhage and further fibrosis. The incisions should originate well above the zone of the scar and be continued in a caudal and peripheral direction, far enough to insure proper drainage. The number of incisions will depend, of course, upon the degree of narrowing, but sufficient relaxation to allow the introduction of both the forefinger and middle finger to the distal interphalangeal joint should be procured as a safeguard against future contracture. After this procedure, digital dilations are given twice weekly until healing is complete and no further evidence of progressive constriction is present. This may take as long as 8 to 10 weeks postoperatively, and, even at the end of that time, the anal orifice may remain at less than optimum caliber. If the patient is free of pain and has established a fairly normal pattern of bowel habit, it is best for the doctor not to let his enthusiasm provoke him into additional attempts to repair the narrowed outlet, for the risk of increasing the deposition of scar tissue far outweighs the chances of improving the anatomic and functional result.

The dense induration of the pectineal fascia of the anal canal, which frequently develops as an aftermath of infection or trauma to this area after surgery, narrows the outlet in a somewhat different fashion. As the process develops, the subcutaneous tissue beneath the pectineal line draws the anal canal into a fixed diameter, even though there is adequate elastic skin distal to this level. Divulsion of the anal canal as a remedy for this condition is an ill-advised procedure, for the submucosal hemorrhage invariably produced by this maneuver tends only to augment the fibrosis already present, and little or nothing is gained. Incision of the pectineal band in the posterior midline gives immediate relaxation to the anal canal, and normal sphincter tone may then be relied upon to maintain proper anal function. In those people who suffer from excessive irritability of the sphincter mechanism, a posterior sphincterotomy may be carried out at the same time the pectineal fascia is incised. Frequent dilations after this procedure insure proper healing and adequate drainage.

INCONTINENCE

With the possible exception of cancerphobia, the fear of being unable to control the passage of gas and fecal material from the rectum is uppermost in the minds of all persons facing anorectal surgery. There is not only a natural apprehension to submit oneself to a surgical procedure upon an area the proper function of which is necessary for unqualified social acceptance, but the number of rumors, half-truths, and sordid tales of "loss of control" following surgery of the anorectum are quite numerous among those who suffer from disease of this area. Unfortunately, these stories too often contain more than a small degree of fact, a situation that offers support to the reluctance and aversion of those people afflicted with anorectal disorders to seek surgical remedy for their distress. Certainly, one cannot ridicule the indisposition of those who delay undergoing treatment when they harbor the anticipation that the price they may have to pay for relief is the terrible plight of finding themselves unable to regulate the exit of material from the large intestine.

Anal incontinence is most commonly the consequence of laceration of the sphincter muscles at the time of surgery, with faulty healing of the incised or divulsed fibers. The degree of dysfunction is for the most part dependent upon the proportion of the muscle so transected, although this factor alone does not always account for the relative extent of seepage or soiling. Comparatively minor injuries may heal with enough disruption of the anal canal to cause embarrassing symptoms, yet deeper and more extensive trauma, which mends in a kindlier manner with a more satisfactory approximation of the loose muscle bundles, will occasionally result only in a predicament of equal severity. The degree of muscle continuity, however, remains as the most important factor in preserving anal continence. Various gradations of dysfunction, ranging from some weakness in voluntary activity when the subcutaneous portion of the external sphincter is divided to complete inability in preventing the escape of the intestinal contents when all components of the muscle are involved, may be encountered.[9]

Often overlooked by the proctologic surgeon is the danger that postoperative incontinence may be initiated by excessive stretching of the sphincter ani during the operative procedure. It is interesting to note that the anal sphincter is one of the last muscles of the body to become relaxed under the influence of a general anesthetic. By excessive dilation before complete relaxation is obtained, the hasty or unwary operator may so exhaust the muscle fibers that their normal tonicity is decreased considerably and the voluntary influence on anal function is rendered ineffectual. Varying degrees of incontinence may also follow mechanical distortion of the anal canal, quite independent of muscle injury, as a consequence of faulty approximation of the mucocutaneous junction, development of mucocutaneous fistula, or the presence of scarring and stenosis of the outlet. Although in the strictest sense these conditions do not alter the ability of the sphincters to close the terminal portion of the intestine, they do represent circumstances that allow uncontrollable leakage and discharge, much against the patient's will. The problem can be dispatched, however, and normal function reestablished when the basic disturbance is corrected. When one considers the anatomic features of the anal sphincter mechanism, it becomes evident that, when muscle bundles have been severed and the ends have retracted, the anal outlet will be lost to voluntary influence, and, regardless of how the area between the parted fibers becomes replaced, fecal material and gas will escape freely. Surgical reapproximation of the muscle ends or, at least, re-creation of peripheral continuity of the sphincteric elements, is therefore absolutely essential in order to provide the distorted tissue with the ability to function normally as a constricting regulator for the passage of intestinal contents.

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[9] Blaisdell, P. C.: Plastic Repair of the Incontinent Sphincter Ani, Am. J. Surg. 79: 174-183 (Jan.) 1950. Fansler, W. A.: The Repair of Anorectal Incontinence Following Operation for Fistula, South. M. J. 45: 229-232 (March) 1952.

The exact manner in which surgical correction of the anal distortion is accomplished will depend upon the nature and severity of the decompensation. Although a tedious and painstaking undertaking, the careful dissection of the frayed fibers from the scar tissue mass that renders them useless and a direct end-to-end approximation of viable muscle probably offers the greatest chance for restoration of sphincteric function. Overcorrection of the defect should be the objective of the operator, yet extreme caution must be exercised lest an excessive amount of tissue be removed, a natural temptation and often an unavoidable hazard. Mattress sutures of absorbable surgical suture serve well in this type of repair. Some workers have advocated the use of imbrication or "reefing" of the scarred or everted segment of the anal wall, especially in those cases in which the hiatus type of distortion is present, with a funnel-like deformity of the anal margin and prolapse of the mucosa. This procedure has special merit in those cases of long-standing incontinence, or when a considerable amount of muscle tissue has been lost, either through previous attempts at repair or through infection with slough—cases in which the risk of further loss of available functional muscle is appreciable. The utilization of fascial strips, wire sutures, and muscle transplants to support the anal outlet have all been attempted, and there is no doubt that each of these techniques has clinical applicability in certain cases. Plastic repair of the severed sphincter ani is often a disheartening problem, taxing both the skill and the patience of the surgeon, and yet a problem in which fastidious attention to even the most minor detail will yield satisfying results.

The people in whom a postoperative atonic sphincter mechanism leads to an annoying leakage of rectal contents, resulting in soiling and perianal irritation, in the absence of disease of the nervous system, respond well to sphincteric exercise. The patients are instructed to voluntarily contract the anal musculature 50 to 100 times every four to six hours during the day. It is gratifying to observe that the most skeptical recipients of this advice are not infrequently the ones in whom the optimum results are obtained.

MUCOCUTANEOUS FISTULA

It is oftentimes astonishing to observe the rapidity with which the tegumentary layers of the anal canal and perianal margin heal after surgical trauma. Epithelization of denuded areas begins almost immediately and progresses at a faster rate than does the repair of the underlying tissues. While this apparently natural law of regeneration would appear to hasten the period of recovery following surgery of the anorectum, its effect is quite the contrary, and, unless the surgeon utilizes some means to retard the speedy overgrowth of the cutaneous layers, a less than desirable result will frequently be obtained. The uniting of the skin level, prior to the granulation and proliferation of the subcutaneous structures, allows the development of a tunnel-like defect, an arrangement that lends itself readily to the formation of abscess tracts and fistulas. As the most cephalad border of the squamous and transitional epithelium is at the level of the mucocutaneous junction, it is at this point that the inner opening of such a sinus will be found. A mucocutaneous fistula, serving well as the nidus for bacterial growth and inflammation, must therefore be avoided if possible or promptly eliminated when discovered.

The best method of preventing the occurrence of mucocutaneous fistula is to repeatedly dilate the anal outlet and, in so doing, break down whatever epithelization has taken place during the period when the subcutaneous defect is being replaced by normal granulation tissue. In those persons who harbor some degree of proctitis prior to surgery and in whom longer than average drainage is essential in the postoperative period, we have sutured down the epithelial edges to the underlying tissues with fine absorbable surgical sutures, as a means of retarding its growth. Some men have advocated the use of chemical irritation of the raw surfaces in order to devitalize the cells, with the same objective in mind. In addition to the painful sequelae of this technique, however, there is the question of whether the application of irritating materials will stimulate rather than discourage the growth of new cells. When mucocutaneous fistula is discovered in the period before fibrosis and secure healing of the bridging skin have taken place, the tract can generally be spread open by firm pressure of the examining finger tip. If this method fails to completely expose the pathological channel, a topical or local anesthetic should be given and incision of the scar carried out. A small, curved blade, introduced into the upper opening and drawn out along the course of the fistula, is an excellent and accurate way to correct the problem. Persistent dilation until healing is completed in the desired fashion must be undertaken in all cases.

ALTERATION OF MUCOCUTANEOUS JUNCTION

The most important landmark in the anal canal is the mucocutaneous line, and preservation of its normal relationship to the anal outlet is a vital part of any procedure carried out in this portion of the intestine. Disruption of its margin following surgical trauma is the underlying mechanism responsible for the development of annoying complaints in the postoperative period. Probably the most frequently observed disturbance in anal function that can be traced to an alteration in the mucocutaneous relationship is the constant seepage of mucus and fecal contents of the lower rectum. This disheartening symptom occurs when an ectropion-like protrusion of secreting mucosa presents into the lower anal canal, the consequence of the surgeon's failure to approximate the dentate margin in a circumferential manner. The reverse of this may also develop, in which squamous or transitional epithelium is inadvertently brought up higher than the lower border of the mucous membrane, resulting in imbrication and retraction of the area so involved. Irregularities of this nature lead to imperfect closure of the anal lumen notwithstanding normal sphincteric function. The derangement of the adjacent crypts, papillae, and anal glands, because of the alteration in their anatomic position, invites the development of irritation and infection at the point of their distortion. Sloughing may occur and ulceration persists in spite of the most vigorous application of the usual supportive measures to combat bacterial invasion. Pain, spasm, and irritation complete the cycle of dysfunction and discomfort to the patient. Anoscopic examination will reveal the segment of everted or retracted mucosa, often surrounded by edema, erythema, and infection, and, in many cases, ulcerated patches of the anal wall may be demonstrated.

In the presence of severe, mixed hemorrhoids it is consistently difficult to place the mucous and squamous layers in proper and accurate apposition after the pathological tissue has been removed. At times an excessive amount of the protuberant clusters of internal hemorrhoids may be removed, thereby making it impossible to reattach the distal edge of the mucosa at the correct level. We have found that by slowly drawing out a gauze sponge that has been packed into the ampulla the degree of laxity of the internal hemorrhoidal mass can be better appreciated as the mucous membrane is prolapsed. Incision to the mucocutaneous line is always made by scalpel rather than by scissors, and hemostatic crushing clamps are never applied to the mucosa with tension at their edges. Incorporation of these measures into the technique of hemorrhoidectomy will reward the surgeon with a decided decrease in the number of complications at the mucocutaneous verge. Although conservative measures, involving the administration of the antibiotics, repeated digital dilations, and local application of cauterizing solutions, will occasionally be of benefit to the patient, the expeditious way to terminate the difficulty is to return the patient to the operating room and surgically correct the defect by excising the involved portion of the wall, freeing up the retracted or everted tissue, and reestablishing the continuity of the mucocutaneous line at the proper level. The postoperative management is then identical with that of any other simple anal plastic procedure.

PRURITUS

The problem of anal pruritus is a broad and intricate subject, and a voluminous amount of literature has accumulated concerning its etiology, pathology, and therapy. It is not our intention to review the many aspects of the disease, for that task has been completed by a number of writers, and their monographs need no improvement. It is pertinent to this discussion to consider, however, the occasional patient in whom the development of a pruritic state can be directly traced to the period following surgery for benign anorectal disease. When such a postoperative history can be definitely elicited, it offers every reason for encouragement to the physician, accustomed to treating this oftentimes disheartening problem, for it indicates in almost every case a definite etiology for the distress, devoid of the deep-seated emotional implications often found in the average patient with pruritus. The specific cause for the postoperative complaint is almost universally based upon either (1) a mechanical defect in the anal outlet; (2) the presence of a low-grade infection, persisting from the time of the operative procedure; (3) allergic phenomenon, initiated by the application or injection of antiseptic or anesthetic solutions; or (4) a combination of any of the foregoing.

The real difficulty in diagnosis arises as a consequence of the inflammatory dermatitis produced by constant scratching of the area and the continuous application of various ointments and creams to combat the torture of the itching perianal skin. The basic pathology is so often distorted by the secondary reaction that it cannot be determined until definite measures are taken to eradicate the maceration, edema, and weeping of the involved tissue. We have found that the simple regimen of sedatives, local application of nothing more than 0.5% aluminum subacetate solution three times daily, and clear instructions for the maintaining of a clean and dry anal outlet have satisfactorily controlled the irritation in almost every instance. In some of the more refractory cases we have resorted to the application of 1 or 2% hydrocortisone acetate, with excellent healing. A diligent search can then be undertaken for possible mechanical factors that may be responsible for aggravating the perianal itching, and proper measures can be carried out for their correction. The preceding paragraphs have enumerated and analyzed the various types of deformities that may result in a pruritus ani, and there is no further reason to evaluate them at this point. The infective and allergic states that lead to pruritus in the postoperative period are more often than not cleared up by conscientious adherence to the plan of treatment mentioned above. There is, occasionally, a need for a broader plan of therapy in those people who are suffering from a severe infection or abscess, involving the utilization of heat, antibiotics, and drainage. Restoration of normal anal anatomy and function will invariably relieve these patients of any further pruritus.

ANAL ULCERATION

An area of erosion in the anal canal after operative trauma is the manifestation of a localized focus of infection, resistant to the usual pattern of healing and epithelization. Ulcerated areas may be found in any position about the anal circumference but are much more common in the posterior midline. There is a definite and understandable reason for this, dependent upon the anatomic configuration of the external anal sphincter, the superficial component of which courses in a converging manner to the anococcygeal raphe deep to the subcutaneous circular fibers. The Y-shaped compartment thus delineated by this relationship is known as the posterior triangular space and is potentially an ideal location for invasion by infecting organisms from adjacent tissue. If the area is invaded, abscess formation or sloughing of the anal wall covering the recess, with persistence of a necrotic, irregular ulcer in the posterior midline, results. Lateral or anterior ulceration may also develop, but such an occurrence is relatively uncommon, and involvement in these quadrants is generally at the anorectal line as a consequence of surgical disruption of this structure. Suture material will frequently act as a foreign body focus for granuloma formation and secondary erosion.

Once again, the importance of proper removal of tissue and the providing of adequate pathways for the drainage of traumatized tissue about the anorectum must be emphasized at this point. For in almost every instance, and the importance of this concept could well tempt one to say "every instance," postoperative anorectal infection and ulceration originate and progress in tissue that has not been allowed to drain amply. Sufficient skin must always be removed in order to retard healing at this level and to prevent blockage of the drainage channels before the mucosa has united and potentially susceptible areas for infection remain. Repeated dilations are added insurance that such will not take place. If septic products are permitted to flow to the outside freely, there is little danger that the posterior triangular space or the mucocutaneous junction will become infected or ulcerate. Until the mechanical defects that have preceded the infection have been corrected or until drainage has been provided, the ulcerations will remain resistant to conservative therapy. It is logical and wise to resect the ulcer-bearing tissue at the time of the secondary procedure, for, in so doing, minimal scarring and contracture of the anal canal will ensue.

SUMMARY AND CONCLUSIONS

Complications following surgery for benign anorectal disease still occur too frequently. These not only may be annoying or even disabling but if allowed to persist may result in suspicion and mistrust in the mind of the patient. Some of the complications are observed in the early postoperative period; these are fecal impaction, bleeding from the operative site, infection, and excessive pain. The development of any one or more of these conditions is likely to delay or prevent proper healing, resulting in eventual anal function that is less than satisfactory. Other factors that complicate normal convalescence and recovery become evident later in the postoperative period; stenosis of the anal outlet, incontinence, fistula formation, or disruption of the mucocutaneous junction are the most important of the later sequela. Unless these can be avoided, surgical correction may be necessary.

There are several means by which complications may be reduced or eliminated. A closer attention to the restoration of the normal configuration of the anal outlet is essential. The provision of adequate pathways for drainage must never be overlooked. Frequent postoperative rectal digital examinations, in addition to assuring better healing by promoting drainage and preventing the formation of excessive scar tissue, have also proved to be the best means of recognizing trouble before it becomes a serious threat to the patient's welfare.

9815 S. Oakley Ave. (43) (Dr. Anderson).

SURGICAL TREATMENT OF NONCALCULOUS BILIARY TRACT DISEASE

Daniel J. Preston, M.D., Wilmington, Del.

Unsatisfactory results of cholecystectomy for noncalculous cholecystitis are a frequent occurrence. Errors in diagnosis and incomplete surgical procedures are believed to be the cause of some of these failures. The purpose of this report is to discuss surgical methods for improving the results of treatment of noncalculous biliary tract disease. Cole[1] reports that 50% of gallbladders removed in the United States are noncalculous. Maingot[2] states that less than 25% of patients are free of symptoms after cholecystectomy for noncalculous gallbladder disease. Snodgrass[3] found 64% poor surgical results in this group. Bockus[4] says that colic occurs in one-third of patients with symptoms due to chronic cholecystitis without stones. Presuming these estimates are relatively accurate, one is impressed by the large number of patients who are chronically ill from noncalculous biliary tract disease or are disabled by pain after removal of their gallbladder.

A regrettable tendency to teach young surgeons that biliary tract operations should be reserved for patients who have evidence of gallstones does not take into account those individuals who have fixed noncalculous organic disease that cannot be corrected by conservative treatment. A laudable trend to exploration of the common bile duct at the time of cholecystectomy in an increasing percentage of cases is evident from current surgical literature. The chief purpose of common duct exploration in most reported series has been for detection and removal of stones. Such procedures may be followed by persistence of disabling postoperative symptoms when coexisting stenosis or fibrotic stricture at the sphincter of Oddi is overlooked or uncorrected. Obstructive disease of the cystic duct with associated infection and abnormal function of the gallbladder can be treated with good results by cholecystectomy and removal of the cystic duct, provided the disease process is limited to these structures. When obstructive disease of the common bile duct coexists with cholecystitis a good result cannot be anticipated from cholecystectomy alone.

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[1] Cole, W. H., and Elman, R.: Textbook of General Surgery, ed. 4, New York, D. Appleton-Century Company, Inc., 1944, p. 622.

[2] Maingot, R.: Abdominal Operations, ed. 2, New York, Appleton-Century-Crofts Company, Inc., 1948, p. 675.

[3] Snodgrass, T. J.; Munn, W. A., and Flarity, T. H.: Surger the Gallbladder: Study of the Results of Surgical Treatmen adelphia, County, Wis., Arch. Surg. 61:199-210 (Aug.) 1950.

[4] Bockus, H. L., and others: Gastro-Enterolo W. B. Saunders Company, 1946, pp. 565-577

Evidence of obstruction is found at operation most often at one or both of two key points in the biliary tract; these are the cystic duct and the terminal portion of the common duct (fig. 1). Biliary hypertension and stasis from impaired drainage due to hypertrophic stenosis or fibrotic stricture at the sphincter of Oddi is associated with degenerative changes in the pancreas because of the common channel for the pancreatic duct and common bile duct controlled by a single sphincter in most individuals. Reflux of pancreatic juice into the biliary tract and reflux of bile into the pancreatic duct can occur from obstruction at the sphincter of Oddi. Resulting chemical inflammatory reaction and recurrence or persistence of stenosis at the choledochoduodenal junction favors chronic ascending infection. Thus, a chronic progressive process characterized by cholangiohepatitis, cholecystitis, and chronic pancreatitis may eventuate. Adequate surgical treatment for these patients implies not only removal of the diseased gallbladder but also correction of obstructive disease at the sphincter of Oddi.

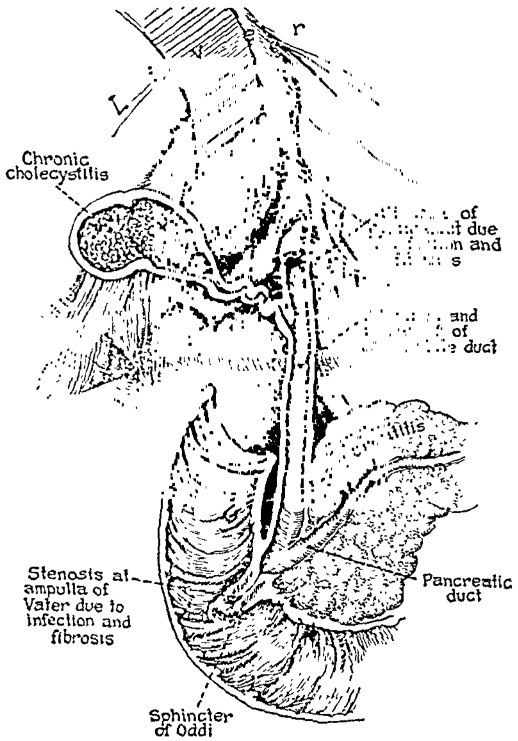

Fig. 1.—Chronic infection and fibrotic constriction causing impaired drainage due to stenosis at the cystic duct or the sphincter of Oddi.

INDICATIONS FOR OPERATION

The basis for selection of patients with noncalculous biliary tract disease for operation rests upon a concise history of typical recurring attacks of biliary colic and demonstration of reliable objective evidence of biliary tract disease. Preoperative study should attempt to determine the extent and severity of the disease process, which may be limited to the gallbladder and cystic duct or may include the common duct, liver, and pancreas. Estimation of impaired hepatic and pancreatic function is helpful in selecting the proper treatment before, during, and after operation. Evidence of cirrhosis or chronic fibrosing pancreatitis may alter an otherwise favorable prognosis. Promise of surgical cure is not justified if prolonged postoperative dietary and medical treatment for nonreversible fibrotic disease of the liver or pancreas may be required, even though one may hope to prevent progression of the disease process in these vital organs by surgical correction of chronic biliary hypertension.

A concise history of typical recurrent biliary colic and x-ray evidence of chronic cholecystitis are considered significant evidence of operable biliary tract disease. Bockus[4] believes that an absent or faint cholecystographic shadow is the most important objective finding in noncalculous cholecystitis. Delay in gallbladder emptying after stimulation by a fatty meal suggests functional or organic disease of the choledochoduodenal sphincter. Mallet-Guy[5] found cholecystography to be of no value for diagnosis of narrowing or fibrosis of the sphincter of Oddi. Sodium iodipamide (Cholografin), a new intravenously given contrast medium in 20% solution, is helpful in visualization of bile ducts. Abnormal dilatation of the common bile duct may be shown, though the cause is not usually apparent from films made by this method. X-ray studies are of no value in the presence of jaundice or when liver function is impaired sufficiently to cause 20% or more retention of sulfobromophthalein (Bromsulphalein) dye.

Typical attacks of biliary colic of short duration that occur soon after eating, show a pattern of increasing frequency and severity, are often associated with nausea and involuntary vomiting, and are not ameliorated by dietary management suggest operable disease of the pancreaticobiliary systems. A history of chronic dyspepsia and postprandial flatulence frequently precedes by months or years the onset of recurrent biliary colic. Progressive weight loss and vitamin deficiencies may be concomitant findings due to inadequate food intake and subnormal assimilation. Persistence or recurrence of biliary colic attacks after cholecystectomy suggests that removal of the gallbladder may have been an incomplete operation. Retained infected stump of cystic duct, overlooked stone in the common duct, chronic pancreatitis, unrecognized and uncorrected hypertrophic stenosis or fibrotic stricture at the sphincter of Oddi should be suspected as possible causes of pain after Cholecystectomy. Long-continued use of an indwelling common duct T-tube can cause chronic irritation with infection and fibrotic thickening of the duct, which may eventuate in late stricture formation after the T-tube has been removed.

Fever, chills, and clinical jaundice are uncommon after biliary colic due to noncalculous disease. Transient mild jaundice and low-grade fever may follow severe noncalculous colic due to cholangiohepatitis or extrinsic pressure on the distal portion of the common duct from enlargement of the head of the pancreas. Pancreatic enzyme levels in blood and urine are usually not elevated in patients with chronic pancreatitis. Tenderness high in the midepigastrium during and shortly after an attack of biliary colic suggests pancreatic involvement when it is associated with percussion tenderness at the left costovertebral angle. Muscle guarding without rigidity in the epigastrium is common during an attack. Except in acute cholecystitis, the gallbladder is not palpable or tender. A tender enlarged liver may be due to ascending infection and cholangiohepatitis. Angina pectoris, cardiac arrhythmia, and evidence of coronary atherosclerosis may coexist with biliary hypertension, especially in patients with the cholesterosis diathesis. Diabetes mellitus is a common associated finding in this group, though advanced fibrotic disease of the pancreas can develop without hyperglycemia or glycosuria. Obesity and coronary atherosclerosis do not contraindicate operation for organic biliary disease. Anginal attacks not induced by exertion may be relieved by interruption of deleterious autonomic viscerocardiac reflexes through surgical correction of biliary hypertension.

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[5] Mallet-Guy, P.; Feroldi, J., and Micek, F.: Disease of the Sphincter of Oddi: Analysis of 70 Observations Collected from Dec. 7, 1945 to July 5, 1949, Lyon chir. 45: 181-199 (Feb.-March) 1950.

A typical attack of biliary colic that can be promptly relieved by inhalation of amyl nitrite or the sublingual application of a glyceryl trinitrate (nitroglycerin) tablet suggests that hypertrophic stenosis or spasm of the sphincter of Oddi may be preventing the normal flow of bile and pancreatic juice. Relief of pain by antispasmodics does not usually prevent or delay future similar attacks. In such individuals an injection of morphine may reproduce a typical attack of colic, presumably from spasm of Oddi's sphincter caused by morphine. Cholesterin crystals, pus cells, and pathogenic bacteria are demonstrable in fresh specimens of bile obtained by duodenal tube drainage when obstructive biliary tract disease exists. Twiss[6] believes the presence of colon-typhoid group and streptococcic organisms in duodenal bile is dependable evidence of biliary tract infection if there is free hydrochloric acid in the gastric juice. Chronic infection and back-pressure produce the visible changes of dilatation and thickening of the common duct found in these patients at operation.

The degree of functional impairment of the liver and pancreas in patients with biliary tract disease is difficult to determine by laboratory procedures. Results of chemical and enzyme tests show significant evidence of insufficiency and decompensation only in those patients who have advanced parenchymal damage. Intractable hypoprothrombinemia and sulfobromophthalein retention of 20% or more are indicative of serious degenerative change in the liver which may not be reversible after surgical correction of biliary tract obstruction. The normal liver has excellent regenerative ability.[7] Biliary obstruction and cirrhosis act to repress regeneration, though metabolism of protein and carbohydrate may remain normal for some time.

Patients with a concise history of frequent, recurring biliary colic and objective evidence of biliary tract disease often require operation for relief but should be given a trial of conservative treatment. Those in whom the symptoms and findings are not relieved by dietary management, antacids, antispasmodics, and anticholinergic medication should not be denied relief by surgical treatment.

DIFFERENTIAL DIAGNOSIS

Certain conditions that simulate biliary tract disease or coexist with it can usually be detected by a careful history, physical examination, and appropriate laboratory procedures. Peptic ulcer may mimic the symptoms of biliary tract disease and is usually revealed by barium x-ray studies. Posterior penetrating duodenal and gastric ulcers that involve the underlying pancreas can cause back pain and tenderness at the left costovertebral angle. They are not to be mistaken for similar symptoms and findings due to chronic pancreatitis. A preoperative diagnosis of early malignancy in the pancreas and stomach is difficult to establish by our present methods.

Small nonreducible epigastric hernia that may be overlooked on physical examination can be the cause of digestive symptoms suggesting gastric or biliary tract disease. In the absence of intra-abdominal disease, repair of the hernia will frequently relieve the digestive complaints. Symptoms of esophageal hiatus hernia may simulate symptoms of biliary tract disease. The hernia is best identified by barium x-ray studies. Back pain and tenderness due to a stone or infection in the left kidney is to be differentiated from symptoms due to chronic pancreatitis. The cause of back pain due to segmental neuralgia, protruded intervertebral disk, spinal arthritis, or metastatic malignancy of the vertebrae is established by history, neurological examination, and appropriate x-ray studies.

Substernal or precordial pain associated with attacks of biliary colic suggests coronary artery disease. Patients with cholesterosis diathesis who have chronic biliary tract disease are subject to attacks of myocardial ischemia from autonomic reflex coronary constriction. Angina pectoris, cardiac arrhythmia, coronary atherosclerosis, or myocardial infarction are detected by physical findings and electrocardiography. Anginal attacks not related to physical exertion suggest the pain may be due to autonomic reflex of biliary tract origin. Marked improvement in the cardiac status of these individuals can be obtained by surgical correction of organic biliary disease. Symptomatic hepatomegaly due to congestive heart failure is to be differentiated from the enlarged tender liver of cholangiohepatitis. Elective biliary tract operations should be postponed in the presence of recent myocardial infarction or untreated cardiac decompensation.

Duodenal diverticulum is infrequently the cause of symptoms. Coexisting biliary disease that may be the cause of complaints should not be overlooked. Duodenal diverticulum is considered the cause of symptoms if bleeding occurs or ulceration in the sac can be demonstrated by x-ray studies. Postoperative peritoneal adhesions do not usually cause pain unless they produce mechanical interference with normal gastrointestinal peristalsis. Pain in the upper abdomen ascribed to adhesions may be due to unrecognized biliary tract disease, peptic ulcer, or carcinoma. Abnormal gas distention of the colon can result from chronic constipation or partial obstruction by tumor.

Psychoneurosis and drug addiction may exist as the sole cause of symptoms or be associated with organic biliary disease. Frequent recurrence of biliary colic and inability to eat an adequate diet can lead to the development of a superimposed psychoneurosis or addiction to narcotics. Evaluation of such problems by a qualified psychiatrist may be helpful in determining the proper course of treatment. Rapid recovery from narcotic addiction and relief of psychoneurotic symptoms may follow surgical correction of biliary tract disease that is causing pain. Such patients should not be denied operation *when there is reliable objective evidence of biliary* tract disease. In our experience, a woman who had been given five electroshock treatments by a qualified psychiatrist without improvement in her psychoneurosis was apparently cured by operation that relieved her abdominal pain.

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[6] Twiss, J. R.; Carter, R. F., and Fishman, B. S.: Infection in Chronic Cholecystitis: Review of 259 Operative Cases with Preoperative and Postoperative Duodenal Drainage Studies, J. A. M. A. 147:1226-1231 (Nov. 24) 1951.

[7] A Textbook of Surgery, by American authors, Christopher, F., ed. 5, Philadelphia, W. B. Saunders Company, 1949, p. 1127.

INDICATIONS FOR EXPLORATION OF COMMON BILE DUCT

Preoperative evidence of biliary tract disease may not be supported by operative findings. Conversely, more serious and extensive disease may be discovered at operation than was suspected. For these reasons only direct evidence found at operation should guide the surgeon in selection of the proper procedure in each case. The coexistence of two or more of the conditions discussed below revealed at operation are believed to warrant exploration of the common bile duct.

An opaque thickened common duct wall results from chronic infection and fibrosis. The wall of a normal common *duct is thin, translucent, and bluish in color*, resembling the color and resiliency of a normal gallbladder. Diameter of the common duct that is greater than 7 mm. results from obstructive disease distal to the dilated portion. Normal diameter of the choledochus is stated by Gray[8] to be equivalent to the diameter of a goose quill. Increased viscosity, dark color, turbidity, pus, or granular sediment in common duct bile is evidence of stasis and infection. Bile aspirated from the common duct via a needle introduced through the wall of the cystic duct is normally clear, of low viscosity, and has a light golden honey color.

Thickening, edema, or nodular fibrosis of the pancreas associated with a thickened or dilated common bile duct is presumptive evidence of obstructive lesion at the sphincter of Oddi. Only one of five clinical types of pancreatitis is due to reflux or back-pressure phenomenon as reported by Saint.[9] Chronic pancreatitis is probably not secondary to biliary tract disease when a normal common duct is present. Doubilet[10] states that 60% of pancreatitis is due to reflux of bile. The finding of cholesterolosis cholecystitis should alert the surgeon to the possibility of stenosis or dyssynergia of the sphincter of Oddi. A yellowish cholesterin deposit over the gallbladder mucosa is frequently associated with cholangiohepatitis and chronic pancreatitis. A thickened contracted gallbladder indicates long-standing infection and is frequently associated with disease disseminated to other parts of the hepatopancreatic system. It is more common in the older age group and should arouse suspicion of a stone in the common duct even though none is found in the gallbladder. Cole[11] reports that there is no jaundice in 45% of cases in which stones are found in the common duct. Jaundice, past or present, with a diseased gallbladder and common duct may be associated with a stone pocketed at the ampulla of Vater.

A dilated cystic duct suggests that sediment, sand, or stones previously in a diseased gallbladder may have passed downward into the common duct. A granular sediment or turbidity of gallbladder bile found in conjunction with a dilated cystic duct is presumptive evi*dence that the disease process also involves the common* duct. Objective evidence of stenosis or stricture at the distal end of the common duct is obtained by testing the patency of this portion with a 3 mm. malleable probe. When the common duct is found to be dilated and thickened, this procedure is done through an opening in the cystic duct, through incision made in the supraduodenal portion of the common duct, or by retrograde approach through incision in the second portion of the duodenum. Information obtained from manipulations through the cystic duct or supraduodenal portion of the common duct is less reliable and carries the risk of injury to the distal part of the duct. Passage of the probe under direct vision through the papilla of Vater by transduodenal retrograde approach is preferred.

SURGICAL TREATMENT

Preoperative evidence of noncalculous biliary tract disease is largely presumptive and supplies the indications for operation. Surgical exposure of the involved structures affords access to direct objective evidence of disease that becomes the basis for selecting the surgical procedure to be employed. Inspection and palpation of the abdominal viscera is done when the abdomen has been opened. Special attention is given to the stomach, duodenum, colon, pancreas, liver, and gallbladder for evidence of previously unrevealed tumor or ulcer in these structures. Removal of areolar and fatty tissue from the cystic duct and adjacent supraduodenal portion of the common bile duct by gentle dissection affords unobstructed view and access to these parts.

When indications for exploration of the common bile duct are found, the second portion of the duodenum is mobilized by Kocher's maneuver. A transverse incision is made through the antimesenteric wall of the duodenum at the level of the lower border of the head of the pancreas. The papilla of Vater is located by palpation with the index finger and by observing the point at which bile enters the duodenum when gentle pressure is applied to the common duct. Patency of the choledochoduodenal junction is tested with a 3 mm. probe gently introduced through the papilla. If the sphincter does not permit passage of this probe, incision is made upward through the papilla and sphincter of Oddi with the use of a small fistula probe for a guide (fig 2). Care is taken to continue the incision only to the upper limit of constriction. The common duct is then explored from below upward with forceps, scoops, and probes. Special attention is given to detection and removal of a possible stone pocketed in the ampullary portion of the common duct.

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[8] Gray, H.: *Anatomy of the Human Body*, edited by W. H. Lewis, ed. 22, Philadelphia, Lea & Febiger, 1930, p. 1191.

[9] Saint, E. G., and Weiden, S.: Studies on Pancreatitis, Brit. M. J. 2:1335-1340 (Dec. 19) 1953.

[10] Doubilet, H., and Mulholland, J. H.: Surgical Treatment of Recurrent Acute Pancreatitis by Endocholedochal Sphincterotomy, Surg., Gynec. & Obst. 86:295-306 (March) 1948.

[11] Cole, W. H.: Recent Trends in Gallbladder Surgery, J. A. M. A. 150:631-637 (Oct. 18) 1952.

After retrograde exploration of the common duct, ampulloduodenostomy is accomplished by suturing the edges of the ampulla of Vater to the edges of the duodenal mucosa to form a permanent enlarged opening at the choledochoduodenal junction. The new stoma is tested with 5 to 7 mm. probes and is considered satisfactory if all bleeding has been controlled by the sutures and no evidence of constriction is demonstrable. Continuous unimpaired postoperative internal drainage of bile and pancreatic juice into the duodenum without a T-tube drain is thus obtained. Recurrence of obstruction by late postoperative cicatricial stricture is prevented by the plastic anastomosis between ampulla of Vater and duodenum. Relief of biliary hypertension and improved drainage favors spontaneous subsidence of duct infection and permits recuperation of the damaged liver and pancreas after operation.

The duodenotomy incision is closed transversely in two layers with fine steel sutures. In 83 consecutive transduodenal procedures in which this method of closure was used, there has been no postoperative duodenal fistula from leakage at the suture line. The cystic duct is ligated at its junction with the common duct. Cystic duct and gallbladder are removed. Surgical elimination of sphincter action at the choledochoduodenal junction presumably results in nonfunction of a retained gallbladder as reported by Doubilet.[10] Cholecystectomy is believed advisable in all instances when ampulloduodenostomy is employed. Puestow [12] observes that animals that have a functioning gallbladder have a sphincter mechanism at the distal end of the duct and those that do not have a gallbladder do not have a sphincter.

Immediate results following ampulloduodenostomy are often excellent. Patients who had been unable to eat a normal diet and were disabled by frequent attacks of abdominal pain usually are able to eat a full diet and are free of pain when they leave the hospital. Sufficient time has not elapsed to permit evaluation of final postoperative results in patients who have had this operation. Those in whom clinical evidence of cirrhosis or chronic pancreatic disease is found may require postoperative medical and dietary management. The tabulation summarizes experience in a consecutive group of patients who had operations for biliary tract disease.

Operation	%
Transduodenal retrograde exploration of common duct	53.5
Cholecystectomy for stones	32.9
Ampulloduodenostomy	30.9
Sphincterotomy	14.1
Clinical evidence of chronic pancreatitis at operation	13.4
Stones removed from common duct	12.9
Ampulloduodenostomy for noncalculous disease	11.6
Cholecystectomy for noncalculous disease	9.0
Postcholecystectomy ampulloduodenostomy	4.5
Postsphincterotomy ampulloduodenostomy (1 case)	0.6

Much postcholecystectomy disability can be prevented in patients with noncalculous biliary tract disease if associated distal duct stenosis is looked for and corrected when the gallbladder is removed. Cattell [13] believes that fibrotic stricture at the sphincter of Oddi is a common cause of failure following cholecystectomy. Unwarranted or indiscriminate surgical exploration of the common bile duct for which no valid criteria are present is dangerous, meddlesome surgery and cannot be condoned on any pretext. The surgeon who fails to correct organic obstructive disease of the common duct revealed by proper evidence at the time of cholecystectomy is delinquent in his responsibility.

SUMMARY

Reduction in the number of unsatisfactory results following operations for noncalculous biliary tract disease is aided by proper selection of patients for operation and surgical correction of coexisting stenosis or stricture at the sphincter of Oddi when cholecystectomy is done. Transduodenal retrograde exploration of the common bile duct and ampulloduodenostomy are recommended when evidence of obstructive disease is found at the choledochoduodenal junction. This procedure relieves biliary hypertension and affords continuous unimpaired postoperative internal drainage of bile and pancreatic juice without a T-tube drain. Improved internal drainage of the biliary and pancreatic ducts permits spontaneous postoperative clearing of infection and favors recuperation of the damaged liver and pancreas. Unwarranted prolongation of ineffectual medical treatment or procrastination in obtaining surgical correction of fixed organic biliary tract disease shows disregard for a progressive process that may produce serious damage to the liver and pancreas.

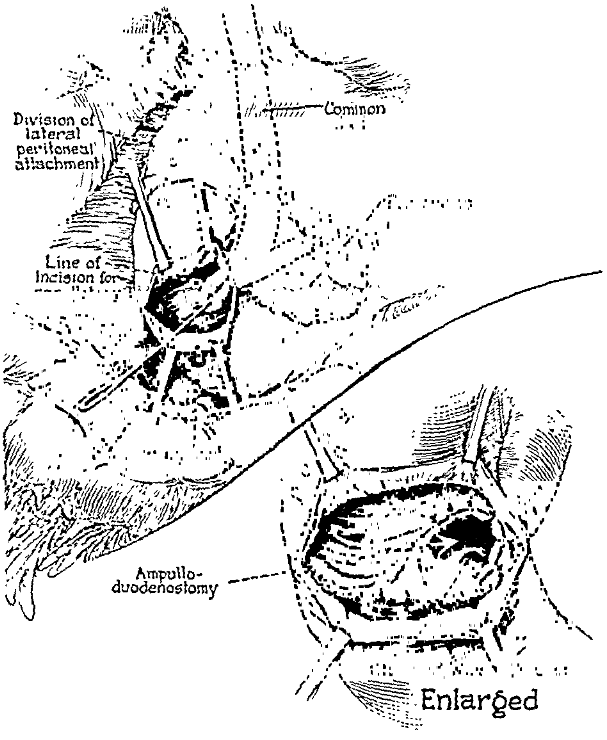

Fig. 2.—Fibrotic stricture of the sphincter of Oddi divided over a slender probe to permit retrograde exploration of the common bile duct. Enlarged diagram indicates plastic construction of a new stoma between the ampulla of Vater and the duodenum for continuous unimpaired internal drainage of bile and pancreatic juice after operation without a T-tube.

600 Delaware Ave.

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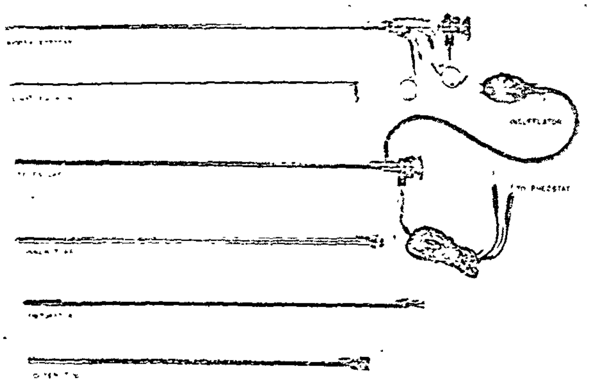
[12] Puestow, C. B.: A Handbook of Operative Surgery: Surgery of the Biliary Tract, Pancreas and Spleen, Chicago, Year Book Publishers, Inc., 1953, pp. 95-96.

[13] Cattell, R. B., and Colcock, B. P.: Fibrosis of the Sphincter of Oddi, Ann. Surg. 137:797-806 (June) 1953.

CLINICAL AND RADIOLOGICAL CORRELATIONS WITH OPTICAL ESOPHAGOSCOPY

Stephen J. Stempien, M.D., Beverly Hills, Calif., Angelo Dagradi, M.D., Long Beach, Calif.
Donald M. Sanders, M.D., Salem, Ore.
and
Rudolf Schindler, M.D., Los Angeles

In 1948, Schindler[1] reported the development of a new and safe optical esophagoscope. Two features of this instrument (see figure) offer a distinct advantage over conventional types. The rubber-tipped obturator enables the operator to introduce the instrument safely and easily, avoiding hypopharyngeal injury. The optical system has added a new dimension to the visual observation of esophageal anatomy, function, and pathology. Biopsy specimens are readily obtained. Only minor technical difficulties have been encountered; the most annoying of these is the occasional loosening of the light bulb in the optical system on some instruments, requiring adjustments during examinations. This difficulty has been overcome recently by the introduction of an outer telescopic system. It is the opinion of one of us (S. J. S.) that the length of 46 cm. of the standard instrument is too short and should be extended to 53 cm. There is only one limitation with this instrument. It cannot be used in lesions above the arch of the aorta; however, one of us (S. J. S.) was able to examine a lesion lying just above the arch. It must be mentioned that lesions in this vicinity are uncommon.



Optical esophagoscope.

Experience with this new instrument has shown that esophagoscopy need no longer be a hazardous procedure attended by the elaborate ritual of the operating room. Instead, it is now a relatively safe and easy office examination. This should inevitably result in a more extensive use of this important diagnostic method. In this paper we wish to report our clinical experience with this instrument during a period of four years from 1949 to 1952 at the Veterans' Administration Hospital in Long Beach, Calif.

RESULTS OF STUDY

Esophagoscopy was performed 197 times in 172 patients, of whom 166 were adequately studied and followed so that an accurate final diagnosis was established. These studies included: observation of the clinical course; repeat radiological and endoscopic examinations; endoscopic biopsy; surgical exploration; and autopsy. Our experience has shown that gastroscopy is often a valuable check upon roentgenography and esophagoscopy in cases of early varices and small hiatus hernia. A negative roentgenologic examination cannot be accepted as excluding disease of the esophagus. Of 56 patients in whom x-ray findings were negative, 13 were found to have esophageal pathology upon endoscopic examination: 4 had esophageal hiatus hernia; 3 esophagitis; 2 varices; and one each hiatus hernia with varices, carcinoma, telangiectasia, and extrinsic pressure. Hiatus hernia, esophagitis, and varices are the more frequent lesions that can be negative to x-ray examination. The one case of carcinoma was not disclosed on three separate series of upper gastrointestinal studies, which included fluoroscopic surveys directed at the esophagus. Subsequently, esophagoscopy and properly taken esophagrams demonstrated the lesion. The value of esophagoscopy in disclosing additional pathology that is not apparent from the radiological examination is shown by the finding of esophagitis in 10 cases, in 6 in addition to hiatus hernia and in 2 each in addition to benign constriction and carcinoma. Gastritis was found on esophagoscopy in five patients with hiatus hernia. This emphasizes the frequency of inflammatory complications in cases that are thought to be simple hiatus hernia, carcinoma, or cardiospasm.

Table 1 shows a fundamental disagreement in diagnosis between radiological and endoscopic examinations, in which the latter proved correct. In another 19 cases in which the x-ray findings were positive and esophagoscopic findings negative the latter proved correct; the x-ray diagnosis had been varices in 7 cases; hiatus hernia 4; stricture and filling defect 2 each; and varices or hiatus hernia, cardiospasm, hiatus hernia or ampulla, and irregularity in one each. Outstanding among the disagreements between these two methods is the frequency with which a small hiatus hernia is confused with varices and esophagitis confused with either carcinoma or benign cardiospasm. There was complete agreement between the radiological and the esophagoscopic examinations in a group of 36 patients, 20 of whom had hiatus hernia; 9 carcinoma; 2 each varices and benign stricture; and one each varices with hiatus hernia, cardiospasm, and extrinsic pressure.

On the other hand, table 2 demonstrates a group of nine patients in whom the radiological examination

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From the Gastrointestinal Section of the Medical Service, Veterans Administration Hospital, Long Beach, Calif.

[1] Schindler, R.: A Safe Diagnostic Optical Esophagoscope, J. A. M. A. 138: 885-887 (Nov. 20) 1948.

yielded more reliable information than the endoscopic method. In 10 additional cases a positive x-ray finding proved correct, although esophagoscopic findings were negative. This group included three patients each with diverticulum and hiatus hernia, two with varices, and one each with cardiospasm and stricture. Diverticula and certain instances of varices and small hiatus hernia may be difficult to demonstrate by esophagoscopy and, may be more easily demonstrated by x-ray.

There was a very small but important group of five patients in whom both methods failed to establish the correct diagnosis (table 3). The outstanding lesions that may give this difficulty are early varices and small hiatus hernias. In such instances, gastroscopy provides valuable diagnostic help. The instance in which a foreign body was mistaken for carcinoma was in a patient who swallowed a piece of meat that became adherent to the wall of the esophagus, then became covered by mucus, and appeared grossly like tumor.

TABLE 1.—*Cases of Diagnostic Disagreement Between Positive X-Ray and Esophagoscopic Findings in Which Esophagoscopic Diagnosis Proved Correct*

X-Ray Diagnosis	No.	Esophagoscopic Diagnosis	No.
Hiatus hernia?	2	Esophagitis with stricture	2
Varices	2	Hiatus hernia	2
Irregularity and ulcer	1	Esophagitis with diverticulum	1
Carcinoma	1	Benign stricture	1
Carcinoma	1	Benign stricture with hiatus hernia and esophagitis	1
Benign stricture	1	Hiatus hernia with esophagitis	1
Benign stricture	1	Hiatus hernia with gastritis	1
Eventration of diaphragm	1	Hiatus hernia	1
Cardiospasm	1	Esophagitis	1
Irregularity	1	Varices	1
Hiatus hernia with stricture	1	Hiatus hernia with esophagitis	1
Filling defect	1	Extrinsic pressure	1
Carcinoma and diverticulum	1	Diverticulum	1
Abnormality?	1	Esophagitis	1
Total	16	Total	16

COMMENT

Our experience with optical esophagoscopy clearly demonstrates that whenever disease of the esophagus and the cardia of the stomach is suspected, both the roentgenologic method and the endoscopic method should be used if the highest possible degree of accuracy is to be achieved. The radiological examination should precede esophagoscopy and always include properly taken esophagrams. A fluoroscopic survey of the esophagus in the course of routine upper gastrointestinal studies should never be accepted as an adequate examination of that organ. Furthermore, even an adequate x-ray examination that shows negative results should not be accepted as a sufficient diagnostic study for final exclusion of disease of the esophagus or cardia. If the signs and symptoms point to involvement of this region, an esophagoscopic examination is mandatory.

It is important to emphasize that the two methods of examination are not in competition with each other but are complementary to each other. Esophagoscopy has been found to be superior in the diagnosis of esophagitis, hemorrhagic erosions and gastritis within hernial pouches, telangiectasia, and in certain cases of esophageal varices and hiatus hernia. The x-ray examination, on the other hand, may be superior in the diagnosis of esophageal diverticula and in certain instances of esophageal varices and hiatus hernia. Also, it is important to bear in mind that both methods have their limitations, and the correct diagnosis may not be made until gastroscopy, surgical exploration, autopsy, or further observation. Obviously, the biggest advantage of esophagoscopy is the fact that the examination can be checked by biopsy, and in this regard it is important to emphasize that multiple biopsies and repeated examinations with biopsy may have to be done before a definite diagnosis is established.

TABLE 2.—*Cases of Diagnostic Disagreement Between Positive X-Ray and Esophagoscopic Findings, with Esophagoscopic Diagnosis Incomplete*

X-Ray	No.	Esophagoscopic	No.
Carcinoma?	1	Esophagitis	1
Varices	4	Large folds	4
Cardiospasm	2	Esophagitis	2
Hiatus hernia and diverticulum	1	Hiatus hernia	1
Hiatus hernia and diverticulum	1	Esophagitis	1
Total	9	Total	9

We feel quite certain that such a study as this, with its attendant diagnostic benefit to our patients, would have been impossible without the introduction of this new safe optical instrument for the use of the gastroenterologic internist. We have encountered only one complication in this entire series of 197 examinations, and this was in a patient who developed minor bleeding from esophageal varices as a result of violent retching after the introduction of the instrument.

CONCLUSIONS

Whenever adequate roentgenographic examination fails to settle the diagnosis of esophageal and cardial disease, appropriate endoscopic procedures should be undertaken promptly. In this respect, a negative roentgenogram does not exclude esophageal or cardial disease with certainty. In special situations, gastroscopy is an important adjunctive procedure for the examination of the terminal esophagus and cardia, and, with the use of the newer and safer optical esophagoscopes, the usual delay and reluctance in accepting an important diagnostic procedure should be prevented.

TABLE 3.—*Cases in Which Both X-Ray and Esophagoscopic Diagnoses Were Incorrect*

X-Ray	No.	Esophagoscopic	No.	Correct	No.
Negative	2	Negative	2	Varices	2
Varix	1	Varix	1	Negative	1
Carcinoma	1	Carcinoma	1	Foreign body	1
Negative	1	Negative	1	Hiatus hernia	1
Total	5	Total	5	Total	5

436 N. Roxbury Dr. (Dr. Stempien).

CLINICAL NOTES

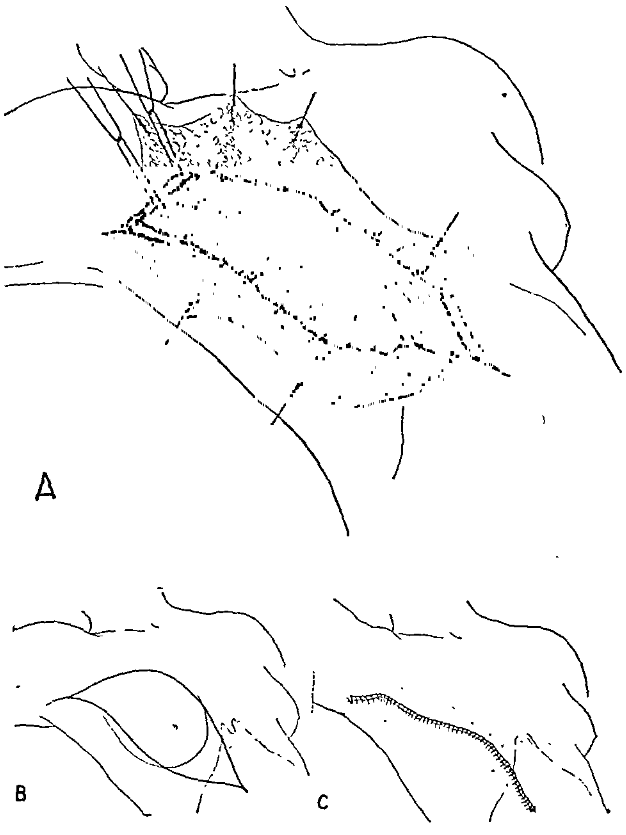
FIXATION OF SKIN FLAPS BY SUBCUTANEOUS SUTURES IN RADICAL MASTECTOMY

Bernard B. Larsen, M.D., Cleveland

Fixation of the skin to the chest wall and axillary fossa by means of subcutaneous sutures after radical amputation of the breast significantly decreases the morbidity of this operation. It has been long recognized by plastic surgeons that skin must be held securely in place if optimum healing is to be obtained. Following breast amputation, this has been a problem because of the almost constant motion of the chest wall and the depth and irregularity of the axillary fossa. Fixation of the skin to the chest wall and axilla by pressure alone has been only partially successful, although ingenious methods of applying external pressure have been employed.

Halsted,[1] in 1913, advocated fixation of the skin over the axillary vessels by suturing the skin edge to the deep structures. The covering flap was made short, so that the edge was sutured "to the fascia just below the first rib in such a way that the skin partly envelops the large vessels. The thoracic or inner wall of the apex of the axilla is always lined with skin grafts." More recently, Orr,[2] Leighton,[3] Keyes,[4] and others have recommended placing sutures through the skin into the deep structures to fasten the flaps in position. Raffl [5] has applied suction beneath the flaps to hold them more tightly in place. Fixation of the skin flaps by means of subcutaneous sutures has certain advantages over these methods.

Subcutaneous fixation sutures may be used following any type of radical breast amputation. I usually prefer an elliptical incision with the upper limit going obliquely across the axilla toward the posterior axillary fold. This affords a large upper skin flap to close over the axillary region. After the radical amputation is accomplished, the arm is placed in marked abduction and the skin flaps are then simply fixed to the chest wall and axilla by many subcutaneous fine cotton sutures to the deep muscles and fascia (see figure, *A*). From 35 to 50 such sutures are employed. Particular care is taken in covering the axillary vessels by suturing the upper flap first to the remaining clavicular portion of the pectoralis major muscle, then to the chest wall in the region of the first and second ribs, and then to the adjacent deep muscles. The flap is thus pulled high into the axillary fossa, obliterating all the major potential dead space. The arm held in marked abduction facilitates this part of the closure. The remaining flap areas are fixed to the chest wall by subcutaneous sutures placed approximately 5 cm. apart. When all subcutaneous sutures have been placed, the skin edges are close to approximation before the skin sutures are inserted. If the blood supply to the skin edges is excellent, a running lockstitch cotton suture is employed (see figure, *C*). If the blood supply is thought to be impaired somewhat, interrupted skin sutures are usually used. If the skin edges do not meet, split-thickness skin grafts are used to cover the defect. Drains are not inserted unless the chest wall is unusually wet or unless for some reason, a dead space persists. A large pressure dressing is applied, which is removed on the third postoperative day. At this time, the skin flaps are adherent, so a smaller, comfortable dressing is put in place, held by adhesive straps fitted with ties.



A, many subcutaneous sutures are placed into the muscles and fascia to fix the skin flaps in position and fill in dead spaces. *B*, area of incision. *C*, skin flaps are securely fixed in the axillary fossa and on the chest wall.

At this writing, this method of closure has been employed in 25 consecutive radical mastectomies with most gratifying results. Skin slough has been minimal. Pocketing of serum or blood has been unusual, even though drainage has not been employed except in the exceptional case. Extensive early movement of the shoulder has been more easily accomplished with less pain. Postoperative inflammation in the wound has been minimal, and it is reasonable to believe this will decrease the incidence of lymphedema of the upper extremity.

900 Keith Bldg.

From the Department of Surgery, Western Reserve University School of Medicine.

[1] Halsted, W. S.: Developments in the Skin-Grafting Operation for Cancer of the Breast, J. A. M. A. **60**: 416 (Feb. 8) 1913.

[2] Orr, T. G., Jr.: Incision and Method of Wound Closure for Radical Mastectomy, Ann. Surg. **133**: 565 (April) 1951.

[3] Leighton, W. E.: Technic for Radical Mastectomy, Arch. Surg. **61**: 312 (Aug.) 1950.

[4] Keyes, E. L.; Hawk, B. O., and Sherwin, C. S.: Basting Axillary Flap for Wounds of Radical Mastectomy, A. M. A. Arch. Surg. **66**: 446 (April) 1953.

[5] Raffl, A. B.: Use of Negative Pressure Under Skin Flaps After Radical Mastectomy, Ann. Surg. **136**: 1048 (Dec.) 1952.

AURICULAR FIBRILLATION FOLLOWING PROLONGED USE OF THYROID EXTRACT

Emanuel Hellman, M.D., New York

Thyroid is administered in large quantities, in most instances unnecessarily, to patients all over the world. The extent to which the empirical use of such medication may be carried is shown in a recent article on the treatment of subdeltoid bursitis in which the author states, "The internist should review the patient generally and possibly prescribe thyroid or other hormones which in some instances appear to be effective."[1] In most cases no great harm results from such medication. Among the harmful effects that may result, particularly after prolonged administration of large doses, auricular fibrillation is most uncommon. The following case is therefore presented.

REPORT OF A CASE

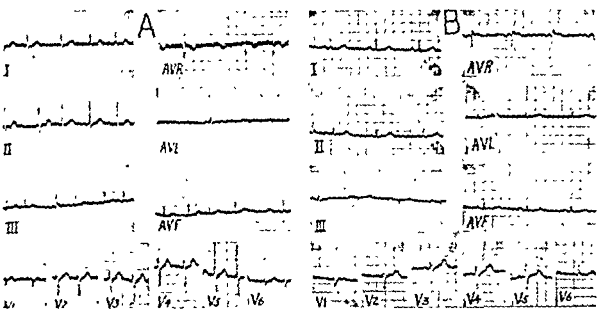
A 53-year-old female was referred for cardiac survey on Nov. 3, 1952. Her occupation required that she walk about most of the day. She stated that she had had intermittent, mild swelling of the ankles toward the end of the day for the past 20 years. About four weeks previously this swelling began to involve the legs as well as the ankles. There were no other cardiac symptoms. During this four week period she had received two injections of a mercurial, with considerable lessening of edema and weight loss each time. In 1946 she had sought treatment for mild obesity. Her basal metabolic rate at that time was reported as -10%. Therapy with 3 grains (0.2 gm.) of thyroid daily was started, and she had continued to take thyroid without interruption for six years prior to the date of examination. History was otherwise irrelevant.

Physical examination revealed a white female weighing 110 lb. (49.9 kg.) who did not appear acutely or chronically ill. Color was good and skin clear, not dyspneic or cyanosed. The throat was normal, and no adenopathy was revealed. The thyroid gland was not enlarged, and there was no exophthalmus. No neck vein distention was observed, and the eyegrounds were normal. There was a very fine tremor of the hands. The heart was not clinically enlarged. Blood pressure was 140/80 mm. Hg, and there was a grade 2 systolic murmur at the apex, not transmitted or influenced by change of position or exercise. The cardiac rhythm was grossly irregular, with a rate of approximately 100 beats per minute. The lungs were clear, the abdomen was normal, and there were no neurological findings. There was a 1 to 2+ pitting edema of both legs. Fluoroscopy revealed clear lung fields and normal cardiac contours. The urine showed a specific gravity of 1.022 and was negative for sugar and albumin. The red blood cell count was 4,600,000 per cubic millimeter and the white blood cell count 6,500 per cubic millimeter. The dimensions of the heart shadow as measured on a 6 ft. teleroentgenogram were within normal limits. A right oblique film taken after barium swallow revealed a normal left auricle. An electrocardiogram (see figure, *A*) revealed auricular fibrillation. There were no abnormalities of the ventricular groups diagnostic of myocardial disease.

The patient was placed on a low-salt diet and therapy with ¼ grain (15 mg.) of phenobarbital three times a day. Use of thyroid was stopped. The edema diminished progressively and completely disappeared within two weeks. On Dec. 12, 1952, the patient stated that she felt well, and it was noted that her cardiac rhythm was regular. The systolic murmur noted at the first examination had completely disappeared. An electrocardiogram (see figure, *B*) showed normal sinus rhythm, with no evidence of myocardial damage. The basal metabolic rate was -13% and blood cholesterol 250 mg. per 100 cc. On March 4, 1953, observation showed basal metabolic rate +1% and blood cholesterol 280 mg. per 100 cc. The patient remained clinically well, and there was no return of the auricular fibrillation.

COMMENT

The myxedematous patient responds to small doses of thyroid with a prompt rise in the basal metabolic rate and the serum protein-bound iodine, and these remain elevated as long as use of the drug is continued. Euthyroid subjects, however, show great individual variation in tolerance and response to prolonged administration of increasing amounts of the drug. In most euthyroid subjects, studies of basal metabolic rate, serum protein-bound iodine, and radioactive iodine uptake indicate that the activity of the thyroid gland is reduced under prolonged administration of thyroid.[2] In one patient with factitious thyrotoxicosis who was operated upon for toxic diffuse goiter (Graves' disease), the thyroid gland was found to be small, and biopsy was reported as showing "involution."[3] These observations are in keeping with experimental data that show suppression of thyroid activity and shrinkage of the gland after feeding of thyroid. It is thought that these effects are brought about by decreased secretion of thyrotropic hormone. In this connection it has been emphasized that endocrine glands in general may be set at rest and even caused to undergo atrophy by administration of large amounts of their specific hormones.



Electrocardiographic recordings of patient who developed auricular fibrillation following prolonged use of thyroid. *A*, auricular fibrillation with normal ventricular complexes (Nov. 3, 1952). *B*, regular sinus rhythm with normal ventricular complexes (Dec. 12, 1952).

The remarkable ability of the average euthyroid subject to develop tolerance to large doses of thyroid fortunately greatly reduces the incidence of hypermetabolism that might otherwise result from the prevalent indiscriminate use of thyroid preparations. On the other hand, the development of hypermetabolism simulating precisely the picture of full-blown thyrotoxicosis has also been reported in patients receiving large amounts of thyroid. Most instances of endogenous hyperthyroidism that are masked as heart disease are associated with auricular fibrillation. In general, auricular fibrillation occurs in 6 to 34% of hyperthyroid patients.[4] A search of the literature, however, yields only three previously reported cases of auricular fibrillation[5] and one case of auricular flutter[6] arising after thyroid administration to the euthyroid subject. In each case reversion to regular sinus rhythm followed cessation of use of the drug. In this connection it is interesting to note that studies of the effect of feeding large doses of thyroid to dogs, all of which develop signs of severe hyperthyroidism, showed that, while tachycardia occurred regularly, it was accompanied by actual disappearance of the normal respiratory arrhythmia that is characteristic of this animal.[7]

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[1] Cave, E. F.: Symposium on Specific Methods of Treatment: Pain in Neck and Upper Extremity, M. Clin. North America 34: 1323, 1950.

[2] Billings, F. T.: Iatrogenic Hypothyroidism, Am. J. M. Sc. 221: 495, 1951.

[3] Cope, O.; Rawson, R. W., and McArthur, J. W.: The Hyperfunctioning Single Adenoma of the Thyroid, Surg., Gynec. & Obst. 84: 415, 1947.

[4] Ernstene, A. C.: The Cardiovascular Complications of Hyperthyroidism, Am. J. M. Sc. 195: 248, 1938. Hamilton, B.: The Heart in Toxic Thyroid States, S. Clin. North America 4: 1411, 1924.

923 Fifth Ave. (21).

[5] Hurxthal, L. M.: Experiences with the Use of Desiccated Thyroid: Methods of Detecting Self-Induced Hyperthyroidism, with a Report of a Case in Which Auricular Fibrillation Occurred, New York State J. Med. **44**: 2217, 1944. Rogers, H. M.: The Cardiovascular Manifestations of Induced Thyrotoxicosis Report of 2 Cases, Ann. Int. Med. **26**: 914, 1947.

[6] Bortin, M. M., and Yohalem, S. B.: Thyrotoxicosis Factitia Masked as Heart Disease, Am. Heart J. **39**: 894, 1950.

[7] Sato, H.: Studies on the Cardiac Rhythm of the Dog in Experimental Hyper- and Hypo-Thyroidism, Tohoku J. Exper. Med. **53**: 317, 1951.

MECHANICAL DRAINAGE OF MASSIVE EDEMA

John B. Wild, M.D., Iowa City

Despite modern therapy edema sometimes proves to be a formidable problem, and recourse has to be made to mechanical means for removing excess fluid. The conditions in which intractable edema most commonly occur are congestive heart failure and nephrosis associated with low serum albumin, with or without a complicating hypertension. No claim is made that the method described is original, and no extensive search of the literature has been carried out. A large number of current and old textbooks have been consulted, and none of them mentions this particular technique. A number of them do not mention the mechanical drainage of edema fluid at all.

Two methods are commonly used for the mechanical removal of dependent subcutaneous fluid. The first is by the introduction of Southey's tubes into the subcutaneous tissue.[1] Long rubber tubes can then be attached to these and led into a basin at the patient's feet. The second method is by making multiple punctures through the skin into the subcutaneous tissue, allowing the fluid to drain from the skin. The use of Southey's tubes appeals because, in theory at least, the fluid can be led tidily away, and it is unlikely that organisms will gain access to the subcutaneous tissue up the long tubes down which the edema fluid is flowing. In practice, however, the tubes are likely to block and as much drainage takes place around them as through their lumens.

The principal objections to the use of multiple punctures through the skin are that they may be extremely painful and that there is a danger of sepsis. This danger is probably overemphasized, because mechanical drainage is not employed unless there is a great deal of edema fluid present; when punctures are made, the flow of fluid is considerable and tends to wash organisms away. When the flow is reduced the legs can be sponged three or four times a day with an antiseptic topically and a wide-spectrum antibiotic can be given parenterally. Pain may be reduced to a minimum by the use of the technique described below.

The apparatus used for making the multiple punctures consists of a piece of cork about 5 by 2.5 by 0.7 in. (12.5 by 6.2 by 1.8 cm.) through which four rows of three 20-gauge needles are thrust so that the points project by at least half an inch (see figure). The whole apparatus is autoclaved. The sites selected for puncture are the most dependent parts of the body where the edema is massive. These usually will be the dorsum of the feet and the medial and lateral aspects of the dorsum of the legs. The skin is scrupulously cleaned and sprayed with ethyl chloride until it is chilled. The operator then holds the battery of needles firmly in the palm of his hand and stabs the sites chosen; the points should penetrate about a quarter of an inch below the skin. If the operator's movements are swift, it should be possible to make 36 punctures in less than two seconds. The needles are not left in the skin but are removed as rapidly as they are inserted. It will be found that the patient feels as if he is being stuck with one needle each time the battery of punctures is made, provided the needles are used rapidly and forcibly.

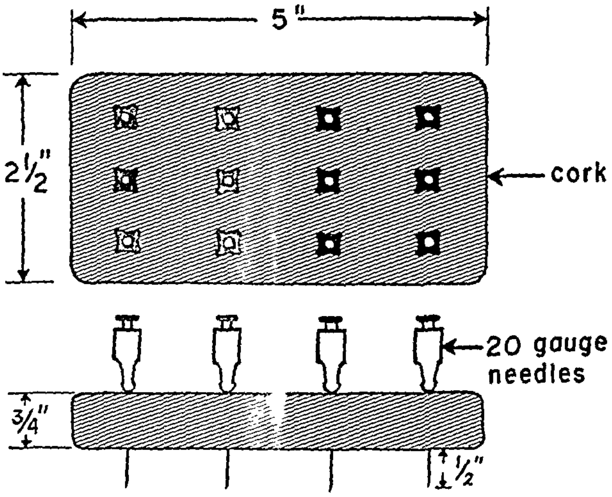

Diagram of apparatus for mechanical drainage of massive edema. Above, surface view. Below, side view.

The patient is then made to sit in an easy chair or cardiac bed with the legs dependent. If the edema fluid drained is to be measured, a rubber sheet is arranged behind the legs to channel the fluid into basins. Care should be taken not to allow the patient's feet to rest on the bottom of the basins because they will soon be soaking in edema fluid and will become cold and the skin will become macerated. The feet can conveniently be supported on a small stool. A broad-spectrum antibiotic is given for at least 24 hours longer than the legs drain, and the puncture sites are bathed with a mild antiseptic four times a day. Whether or not these precautions are necessary is not known, but one is loath to omit them. In the cases described below in which this technique was used, and in several others, no single case of sepsis that could conceivably be traced to the skin punctures was seen.

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[1] Southey, R.: Traitement de l'anasarque général par un drainage capillaire, Compt.-rend. A. franç. pour l'avancement d. sc. **6**: 856-860, 1877.

REPORT OF CASES

CASE 1.—An obese, dyspneic, orthopneic 51-year-old white woman suffering from nephrosis had massive edema of the legs, anterior abdominal wall, and sacrum. Widespread rales were heard in the chest except where there was a right hydrothorax. The heart was enlarged. The blood pressure was 170/100 mm. Hg. On admission the output of urine was scanty and contained 4+ protein. No erythrocytes or hemoglobin could be found in a centrifuged urine. The hemoglobin level was 13 gm. per 100 ml., and the white blood cell count was normal. The serum protein level was 5.1 gm. per 100 ml., the albumin level 2.95 gm., and the globulin 2.15 gm. per 100 ml. The blood urea nitrogen level was 99 mg. and creatinine level 6.7 mg. per 100 ml.

Mercurial diuretics were given intramuscularly on the first and second hospital days. The diuresis was satisfactory but made little impression on the edema, and it was obvious that this form of therapy would be extremely slow in removing the excess fluid. On the second hospital day 600 cc. of fluid was removed from the right pleural cavity. On the third hospital day multiple punctures were made in her feet and legs, and the fluid was collected in basins. In six days 13,250 cc. of fluid drained from the feet and legs. Her weight fell from 265.5 lb. to 232 lb. During this time she was eating a diet containing 150 gm. of protein. There was no sodium restriction and no diuretics were administered while the legs were draining. The urine output was satisfactory throughout, and the blood urea nitrogen fell to 70 mg. per 100 ml. and the creatinine level to 2.6 mg. per 100 ml.

The patient was discharged on March 12, 1954, weighing 240 lb. She continued with her high-protein diet for only three weeks and then could no longer tolerate it. Injections of mercurial diuretics three times a week produced good diuretic responses, but she started to gain weight and was readmitted on June 16, 1954. Her edema was once more considerable and the other findings were similar, except the blood urea nitrogen and creatinine, which were 19 mg. and 1.6 mg. per 100 ml. respectively. June 17 the legs and feet were again punctured, and a total of 6,050 cc. was collected in the next six days. Her weight fell from 257 to 229 lb. During this period she received mercurial diuretics with excellent response. She was discharged on June 30, weighing 221 lb. and feeling quite comfortable.

CASE 2.—A 50-year-old white woman suffering from severe, prolonged hypertension complicated by congestive failure had intractable edema that failed to respond to a low sodium diet and mercurial diuretics. For 17 days her weight varied between 167 and 151 lb. After her legs and feet were punctured, her weight fell from 151 to 110 lb. in four days. Her general condition very greatly improved, and she could walk about once more.

CASE 3.—A 46-year-old white woman with severe congestive failure complicating hypertension did not respond to a low-sodium diet and mercurial diuretics. For six days prior to the puncture of her feet and legs, her weight varied between 123 and 127 lb. Following puncture of the lower limbs, her weight fell to 113 lb. Thereafter she responded well to diuretics. She was discharged in 25 days weighing 109½ lb. and three months later during a routine check was found to weigh exactly the same.

CASE 4.—A 32-year-old white woman had severe congestive failure and edema complicating hypertension, diabetes, and albuminuria. Only the feet were punctured because of sepsis on the legs. In three days 3,275 cc. of fluid was collected. She died suddenly and unexpectedly on the fourth day after her feet were punctured. Permission for autopsy was refused.

CASE 5.—A 50-year-old Negro with hypertension and congestive failure showed no response to treatment with diuretics and sodium restriction. Three liters of fluid was collected in two days after puncturing the feet and legs. Thereafter there was a good response to the repeated use of mercurial diuretics.

COMMENT

I consider that the method I have described is the method of choice for the mechanical relief of edema fluid. I use it in the following circumstances: (1) when edema causes tension of the skin that is not rapidly relieved by more conservative therapy, (2) when there is no diuresis following the use of mercurial diuretics, (3) when mercurial diuretics are contraindicated, and (4) in order to shorten a patient's stay in hospital. The advantages of the method described are that the apparatus is simple, the time taken is minimal, and it can easily be employed in the patient's home when this is necessary.

SIMPLE PALPATION TO DETECT VALVULAR INCOMPETENCE IN PATIENTS WITH VARICOSE VEINS

Robert A. Nabatoff, M.D., New York

During recent years, practically every report concerning the treatment of varicose veins has emphasized the importance of a proper high ligation of the long saphenous vein. This implies that the long saphenous vein is ligated flush with the femoral vein after all of its adjacent branches are ligated and divided. Unfortunately, in a significant number of cases, the dissection is not carried high enough. Unless the femoral vein is visualized, branches of the saphenous vein near the saphenofemoral junction may be overlooked, and it is these vessels that usually cause recurrent varicosities. The predominant venous insufficiency is usually at the saphenofemoral junction, but there may be incompetent valves in other communicating vessels of the thigh or leg or at the short saphenous vein–popliteal vein junction. The success of operation depends upon the ability of the surgeon to detect and eliminate all sites of valvular incompetence.

Many diagnostic tests have been devised to aid the physician in the detection and localization of "blowouts." The tests most commonly used are: (1) Brodie-Trendelenburg, (2) comparative tourniquet (Ochsner-Mahorner), (3) Perthes', (4) compression, and (5) Schwartz (percussion) test. Performing and interpreting these tests is a rather formidable and time-consuming job for the average student or practitioner. According to Steiner and Palmer's findings,[1] the Perthes', compression, and Schwartz tests have little to offer, are unreliable, and reveal no information that cannot be obtained by more accurate methods. "It would seem that the Brodie-Trendelenburg test, with the additional feature of the tourniquet placed just above the level of the knee . . . will actually afford all of the information required for one to treat any uncomplicated case of varicose veins." Luke [2] also believes that valvular incompetence can be determined by the Brodie-Trendelenburg test and that the other modifications of this test are unnecessary in the evaluation of any case of primary varicose veins. He states: "The modifications of the Trendelenburg test were designed to indicate the competence of communicating veins. In theory this would appear to be quite worthwhile; however, in practice, one cannot rely on such findings. In addition, when the operation of stripping of the great and small saphenous veins is carried out, most incompetent communicating veins are automatically interrupted. Thus, the modifications of the Trendelenburg test, such as the comparative tourniquet or multiple tourniquet tests, become unnecessary."

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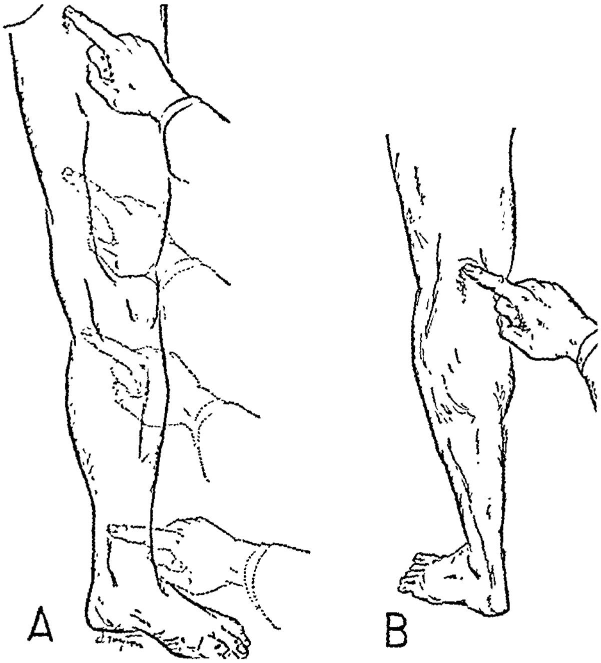
[1] Steiner, C. A., and Palmer, L. H.: A Simplification of the Diagnosis of Varicose Veins, Ann. Surg. **127**: 362-371, 1948.

[2] Luke, J. C.: Venous Disorders of the Lower Extremity, Ciba Clin. Symposia **5**: 100-124, 1953.

As the result of examining many patients with varicose veins, it has become apparent that in practically all cases of saphenofemoral insufficiency, a definite "bulge" can be palpated in the region of the fossa ovalis (see figure, *A*). This has even been true in obese patients. If the tip of the index finger is placed just below the inguinal ligament, just mesial to the femoral artery, the "bulge" is easily palpated. In order to detect any valvular incompetence below this level, the tip of the index finger is run slowly down the thigh and leg along the course of the saphenous vein. If other "blow-outs" exist, a sudden increase of the pressure within the saphenous vein will occur immediately below the site of each incompetent valve. It has been my experience that the vast majority of patients with varicose veins have their predominant insufficiency at the saphenofemoral junction.



The use of simple palpation to localize sites of valvular incompetence in patients with varicose veins. *A*, the tip of the index finger palpates the area just below the inguinal ligament, just mesial to the femoral artery. In patients with saphenofemoral insufficiency, a definite venous "bulge" is invariably palpable. The finger is then run slowly downward along the course of the long saphenous vein. Any abrupt increase of the pressure within the vein usually indicates an incompetent valve immediately above this level. *B*, a similar test used to detect incompetence at the short saphenous-popliteal vein junction. If significant venous insufficiency is present, a definite "bulge" can be palpated in the center of the popliteal space. The finger is then run downward along the course of the short saphenous vein to detect any other "blow-outs."

In order to detect valvular incompetence along the short saphenous system, the popliteal space is palpated. If short saphenous-popliteal vein insufficiency exists, a "bulge" can usually be palpated in the center of this space (see figure, *B*). The finger is then run downward along the course of the short saphenous vein in order to detect any further "blow-outs." As a rule, the incompetence in the short saphenous system has its origin at the saphenopopliteal vein junction. Therefore, at the time of surgery, it is important to ligate the short saphenous vein flush with the popliteal, after all adjacent branches have been divided.

In the vast majority of patients with varicose veins, all venous incompetence originates along the long or short saphenous vein. Occasionally there will be an atypical "blow-out." This can be easily detected by simple inspection and palpation of the thigh and leg. It has been our practice to have the patient stand for several minutes so that the veins may assume their greatest prominence. The tip of the index finger is then run along the course of the long and short saphenous veins. Each site of valvular insufficiency is localized and accurately mapped out.[3] It has been my experience that accurate localization of all perforators can be carried out without the addition of any further diagnostic tests.

CONCLUSIONS

The use of simple palpation has been found to be accurate in the detection of sites of valvular incompetence. It has not been necessary to use tourniquet tests or other complicated maneuvers. The palpation technique is simple to master and takes only a few minutes to carry out. It greatly facilitates diagnostic study in patients with varicose veins.

1150 Park Ave. (28).

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[3] Nabatoff, R. A.: Importance of Adequate Excision of All Incompetent Perforator Vessels in the Surgical Treatment of Varicose Veins: Use of a New Marking Ink to Delineate the Varices, New York J. Med. **52**: 563-565, 1952.

Estrogen Therapy.—The objective of estrogen therapy is to reduce the intensity of distressing symptoms, as well as to tide the patient over a period of physiologic adjustment. Orally taken estrogen is particularly suited to menopausal therapy, and there is no need for its parenteral administration. A positive advantage of oral therapy is the fact that a distinctly smoother control of symptoms may be obtained with any of the estrogens by the taking of one or more doses daily than by any of the ordinary injection procedures at intervals of a week or more. The smallest oral dose required to assuage vasomotor symptoms should be prescribed according to definite rules. Whether one employs a daily dose of 0.625 mg. of estrone sulfate, 0.2 mg. of dienestrol, 0.5 mg. of stilbestrol, or 0.02 mg. of ethinyl estradiol is immaterial. The important precepts are to prescribe the estrogen for a limited period and to withdraw it in gradual manner. The most prevalent abuse in the usage of estrogen, aside from needless employment of estrogenic injections, is the prescription of a routine dose to be taken daily more or less indefinitely. It must be re-emphasized that the objective of estrogen therapy of the menopausal syndrome is to aid the patient's adjustment to the diminution and eventual cessation of ovarian function. This logical aim is lost if the estrogen is not prescribed for measured periods, with repeated attempts to withdraw the hormone entirely. It's about time that we spend more time mitigating menopausal anxiety and less time prescribing estrogen as an "all-purpose female tonic."—S. Leon Israel, M.D., *Journal of the Albert Einstein Medical Center,* November, 1954.

FAMILIAL HEREDITARY PURPURA SIMPLEX WITH SCHÖNLEIN-HENOCH SYNDROME

RESPONSE TO CORTICOTROPIN (ACTH), CORTISONE, AND ANTIHISTAMINICS

Niel Wald, M.D.
and
Milton Kissin, M.D., New York

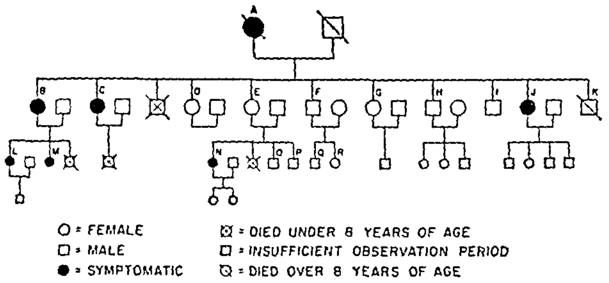
Purpura simplex is a term applied to mild spontaneous purpuric skin manifestations with no hematological abnormality and with the Rumpel-Leede phenomenon frequently present. The condition occurs almost only in women, rarely in children, and is often familial. It has been well recognized since the descriptions by Willan and Bateman early in the 19th century. The hereditary feature was first noted by Bauer in 1868. Davis[1] gave the name *hereditary familial purpura simplex* to this syndrome, which occurred in 88 members of 27 families studied in London. Soulier[2] in France confirmed Davis' findings and noted bleeding in mucous membranes as well as in the skin. In five of Davis' families[1c] a case of Schönlein-Henoch purpura was noted. In Bauer's family study, reported in 1868, one of three sisters having purpura simplex developed severe visceral hemorrhages and died at 22 years of age (perhaps of Henoch's purpura).

Schönlein-Henoch syndrome is the term applied to a condition in which nontraumatic bleeding with or without edema occurs in the absence of hematological abnormality in one or more of the following areas: skin, subcutaneous tissue, mucous membranes, joints, and viscera. First described by Willan in 1808, its skin and joint manifestations were recorded in 1837 by Schönlein, its gastrointestinal disturbances pointed out by Henoch in 1874, and its multiplicity of symptoms and etiologies clarified by Osler. It is currently regarded as an allergic phenomenon, characterized pathologically by increased capillary permeability and produced by sensitivity to bacteria, foods, drugs, or unknown factors. It usually occurs in children and young adults of both sexes and is not ordinarily considered familial, although a syndrome with its characteristics has been described in five generations of a family.[3] The following case is presented to call attention to the possible coexistence of the two syndromes since hereditary familial purpura simplex with Schönlein-Henoch syndrome has not been described in the United States. In addition, the efficacy of corticotropin (ACTH), cortisone, and chlorpheniramine (Chlor-Trimeton) maleate, with relapse following withdrawal of each, seems worthy of note.

REPORT OF A CASE

A 24-year-old white woman was first hospitalized at Beth Israel Hospital on Jan. 8, 1952, with a nine day history of a rash, consisting of small red spots over the legs and with some itching. The rash extended to the buttocks, back of neck, and face, with intermittent progression and recession. At the same time, pain and decreased mobility of fingers, ankles, knees, and shoulders developed, with some ankle swelling. The temperature ranged from 100 to 101 F evenings. Chloramphenicol (Chloromycetin), 250 mg. every six hours for 10 doses, did not alter symptoms.

Except for an annual "summer cold," the patient had been well until 1947, when at irregular intervals of three to six months she developed episodes of petechiae on the arms, pain in the knees and back of legs, low-grade fever, and leukocytosis with a normal erythrocyte sedimentation rate. These attacks generally lasted several days. Sharp abdominal pain was noted during some of these episodes and sometimes independently. Persistent coldness and hyperhidrosis of extremities were also noted. In March, 1948, the patient underwent appendectomy because of right lower abdominal pain, fever, and a leukocyte count of 18,500 per cubic millimeter. The pathologist reported a "grossly normal appendix with an intact mucosa." Some blood was found in the lumen and there were subserosal congested vessels with "no associated inflammatory reaction." In June, 1948, the patient was given a sulfonamide for an upper respiratory infection. She developed severe cough, slight hemoptysis, purpura, and fever. A month of tuberculosis rest therapy followed despite negative tests for tuberculosis. The same episodes persisted. Brucellosis was considered, and the patient finally was referred for psychiatric therapy. Although some benefit was obtained, the above-described picture was not altered. Several months later, the heterophil titer for suspected infectious mononucleosis was negative. The family history revealed the presence of one or more of the following symptoms in many of the female adults over three generations: profuse bleeding due to trauma, epistaxis, urticaria, joint pain and swelling, abdominal pain, heart murmur, and spontaneous ecchymoses. (See figure and table. Persons designated as B, C, L, and M were examined by one of us [N. W.].) None of these symptoms and signs were present in the history of any of the males.


A
B
C
D
E
F
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I
J
K
L
M
N
O
P
Q
R
○ = FEMALE
□ = MALE
● = SYMPTOMATIC
⊠ = DIED UNDER 8 YEARS OF AGE
□ = INSUFFICIENT OBSERVATION PERIOD
⊠ = DIED OVER 8 YEARS OF AGE

Geneological presentation of pertinent symptoms in family of patient studied.

Physical examination revealed the following positive findings: temperature 100.4 F, pulse rate 112 beats per minute. There was a petechial morbilliform rash over the lower part of both legs and to a lesser degree on the face and back. The heart rhythm was regular, with a rate of 112. A faint blowing systolic murmur was heard at the cardiac apex. The liver edge was palpable 1 cm. below the costal margin. Minimal swelling of the third and fourth phalanges bilaterally was noted.

Laboratory Data.—Urinalysis was negative. The hemoglobin level was 13 gm. per 100 cc. (84%), leukocytes 15,000 per cubic millimeter, polymorphonuclear cells 77%, stab forms 2%, lymphocytes 11%, eosinophils 4%, monocytes 6%; platelets 169,000, and erythrocyte sedimentation rate 5 mm. in one hour. The blood glucose level was 99 mg. per 100 cc., blood nonprotein nitrogen 27 mg. per 100 cc., and serum protein 6.79 mg. per 100 cc., with albumin 4.9, globulin 1.8, and the albumin-globulin ratio 2.7. The thymol turbidity was 3.7 units and cephalin flocculation 2+ in 48 hours. The plasma ascorbic acid level was 2.16 mg. per 100 cc.; prothrombin time, modified

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From the Medical Service, Beth Israel Hospital. Dr. Wald is now with the Atomic Bomb Casualty Commission.

[1] Davis, E.: (a) Hereditary Familial Purpura Simplex, Lancet 2: 1110 (Nov. 25) 1939; (b) Hereditary Familial Purpura Simplex: Review of 27 Families, ibid. 1: 145 (Feb. 1) 1941; (c) The Schönlein-Henoch Syndrome of Vascular Purpura, Blood 3: 129 (Feb.) 1948.

[2] Soulier, J. P.: Syndromes hémorragiques avec atteinte isolée de la Résistance capillaire: Étude de 38 cas, Sang 21: 801, 1950.

[3] Reimann, H. A., and Angelides, A. P.: Periodic Arthralgia in 23 Members of 5 Generations of a Family, J. A. M. A. 146: 713 (June 23) 1951.

prothrombin consumption time,[4] bleeding time, Lee-White clotting time, and clot retraction were all normal. Kahn and Wassermann serologic tests were negative. The electrocardiogram and chest x-ray were normal. The Rumpel-Leede phenomenon was markedly present.

Clinical Course.—The clinical diagnosis of Schönlein-Henoch purpura in a patient with familial hereditary purpura simplex was made. The patient was given corticotropin intravenously in 1,000 cc. of 5% glucose solution over a period of 10 hours on Jan. 13, 1952. There was marked improvement after the first dose. The following day, the same treatment was given, with complete disappearance of all signs and symptoms. Dosage of corticotropin was tapered off in 5 mg. decrements. The Rumpel-Leede phenomenon became absent. After a final dose of 2.5 mg., the patient was discharged on Jan. 17, 1952.

Second Admission.—The patient was well for two days; then recurrent arm and shoulder pain and stiffness as well as swelling of fingers developed, and spontaneous ecchymoses of thighs were noted. Acetylsalicylic acid was administered without any effect on symptoms, until tinnitus and vomiting supervened, and the patient was readmitted on Jan. 23, 1952. Physical examination revealed a temperature of 99.6 F; tenderness and pain of neck, shoulders, elbows, wrists, and fingers, and mild interphalangeal joint swelling with limitation of motion.

The Rumpel-Leede phenomenon was again present. Twenty milligrams of corticotropin intravenously gave complete remission. The dosage was tapered rapidly, therapy changed to cortisone, and the patient was discharged on Jan. 28, 1952, on a regimen of 25 mg. cortisone four times daily. This was reduced gradually to 12.5 mg. daily, and in two weeks therapy was stopped. The Rumpel-Leede phenomenon became absent. The patient remained symptom-free until about a week later, when mild ankle and knee pain recurred as well as interphalangeal stiffness and swelling. Tripelennamine (Pyribenzamine), 50 mg. every four hours, controlled these symptoms in one day but evoked unpleasant side-effects of nausea and somnolence. Therapy with chlorpheniramine, 4 mg. given four times daily, was instituted, with complete clinical relief of symptoms and absence of the Rumpel-Leede phenomenon. After several weeks, this therapy was discontinued, and the patient was asymptomatic for the three months that she was followed without therapy; however, the Rumpel-Leede phenomenon again was mildly present.

Distribution of Age, Sex, Symptoms, and Signs in Family of Patient with Purpura Simplex

Members of Family	A	B	C	D	E	F	G	H	I	J	K	L	M*	N	O	P	Q	R
Sex	F	F	F	F	F	M	F	M	M	F	M	F	F	F	M	M	M	F
Age, yr.	71	59	58	53	51	49	45	43	40	39	23	36	24	30	24	21	20	18
Spontaneous petechiae and ecchymoses	+	+	+	0	0	0	0	0	0	+	0	+	+	+	0	0	0	0
Epistaxis	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Excessive bleeding from trauma	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Urticaria	+	+	+	0	+	0	0	0	0	0	0	+	+	+	0	0	0	0
Joint pain and stiffness	0	+	0	0	0	0	0	0	0	+	0	+	+	+	0	0	0	0
Abdominal pain	0	0	0	0	0	0	0	0	0	+	0	0	+	0	0	0	0	0
Heart murmur	0	0	0	0	0	0	0	0	0	+	0	0	+	+	0	0	0	0
Joint swelling and arthritis	0	0	0	0	0	0	0	0	0	+	0	0	+	0	0	0	0	0
Tourniquet test	?	+	+	?	?	?	?	?	?	?	?	+	+	?	?	?	?	?

* Subject of this report.

COMMENT

Both the Schönlein-Henoch syndrome and familial hereditary purpura simplex are relatively benign conditions, the latter even more than the former, in which the establishment of the diagnosis is of greatest importance because of the resultant prevention of unnecessary or erroneous treatment. In this case, diagnoses entertained prior to hospitalization included pulmonary tuberculosis, acute appendicitis, infectious mononucleosis, brucellosis, psychoneurosis, secondary syphilis, and rheumatic fever.

The coexistence of these two syndromes as noted by Davis,[1] and in our case, suggests some common etiological relationship. Another point in favor of some common denominator is revealed by a review of the diseases that have been found related to each of these two entities. Davis points out, in the literature and in his own series,[1] a significant association between familial hereditary purpura simplex and both rheumatic fever and rheumatoid arthritis. In our family study, there are three persons with known heart murmurs, five persons with transient joint pains and swelling, and one with definite joint deformities. Schönlein noted a high incidence of rheumatic sufferers among patients having the syndrome that bears his name. Since then, Osler and many others [5] have suggested a linkage with anaphylactic states, acute nephritis, rheumatic fever, and polyarteritis nodosa. Quick [6] suspected a close relation with thrombocytopenic purpura.

A common pathogenic factor noted in all these diseases is alteration of capillary endothelium with resultant increased permeability, perhaps with a hypersensitive state. Since adrenal cortical stimulation with corticotropin, and cortisone have been shown to increase capillary resistance by Robson and Duthie [7] and others,[8] corticotropin was used therapeutically with excellent rapid response followed by prompt relapse on subsequent cessation of therapy. This same sequence was repeated once again with corticotropin and then with cortisone. The same beneficial effect was noted by Stefanini and others [9]

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4. Wald, N.; Weiner, M., and Sussman, L. N.: Investigation of Coagulation Defects Using a Modified Prothrombin Consumption Test, abstracted, Clinical Research Meeting, April 23 and 24, 1952, Bull. New York Acad. Med. **28**: 609 (Sept.) 1952.

5. Wintrobe, M. M.: Clinical Hematology, ed. 3, Philadelphia, Lea & Febiger, 1951. Ruben, R. M.: Case 1: Henoch-Schönlein Purpura with Nephritis, in Karelitz, S.: Conference at the Mount Sinai Hospital of New York, March 24, 1949, Clinical Conference, J. Pediat. **36**: 810 (June) 1950. Gairdner, D.: Schönlein-Henoch Syndrome (Anaphylactoid Purpura), Quart. J. Med. **17**: 95 (April) 1948. Levitt, L. M.; Burbank, B., and Nath, B.: Henoch-Schönlein's Syndrome with Glomerulonephritis, Ann. Int. Med. **35**: 1374 (Dec.) 1951.

6. Quick, A. J.: Physiology and Pathology of Hemostasis, Philadelphia, Lea & Febiger, 1951.

7. Robson, H. N., and Duthie, J. J. R.: Capillary Resistance and Adrenocortical Activity, Brit. M. J. **2**: 971 (Oct. 28) 1950.

8. Ebert, R. H.: Changes in Connective Tissue Reaction Induced by Cortisone—in Vivo Observations Using the Rabbit Ear Chamber Technique, abstracted, Proceedings of the 43rd Annual Meeting of the American Society for Clinical Investigation, J. Clin. Invest. **30**: 636 (June) 1951. Faloon, W. W.; Greene, R. W., and Lozner, E. L.: The Hemostatic Defect in Thrombocytopenia as Studied by the Use of ACTH and Cortisone, ibid. **30**: 638 (June) 1951.

9. Stefanini, M.; Roy, C. A.; Zannos, L., and Dameshek, W.: Therapeutic Effect of Pituitary Adrenocorticotropic Hormone (ACTH) in Case of Henoch-Schönlein Vascular (Anaphylactoid) Purpura, J. A. M. A. **144**: 1372 (Dec. 16) 1950.

and Kugelmass [10] in Schönlein-Henoch syndrome and by Hewlett and Scott [11] in 12 patients with assorted thrombocytopenic states. In view of the often suggested possibility of an allergic basis for this syndrome, antihistaminics were tried. Tripelennamine and chlorpheniramine therapy was used, with good response. A similarly good result has been reported by Keenan.[12] The lack of a clinical relapse on cessation on antihistamine therapy suggests that the present episode may have run its course; however, the rapid onset of effect and the post-therapy return of the positive Rumpel-Leede phenomenon in our case, as well as the good response of Keenan's patient to tripelennamine would seem to indicate that these medicaments, too, are sometimes effective in temporarily restoring normal capillary endothelial integrity.

SUMMARY

Schönlein-Henoch syndrome was found to coexist in an individual with familial hereditary purpura simplex. Altered capillary endothelium is a common pathogenic factor in these syndromes. Therapy with corticotropin (ACTH), cortisone, and antihistamines is beneficial.

APO 182, % PM, San Francisco (Dr. Wald).

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[10] Kugelmass, I. N.: Cortisone in Allergic Purpura of Children, New York J. Med. 51:2504 (Nov. 1) 1951.

[11] *Hewlett, J. S., and Scott, T.: Responses to Corticotropin (ACTH)* and Cortisone in Thrombocytopenic States, Cleveland Clin. Quart. 20: 430 (Oct.) 1953.

[12] Keenan, W. S.: Treatment of Henoch's Purpura with Pyribenzamine: Case Report, Lahey Clin. Bull. 7: 54 (Oct.) 1950.

NEW REGIONAL ANESTHETIC TECHNIQUE FOR ADULT CIRCUMCISION

Stuart Light, M.D., Chicago
Glenn R. Weygandt, M.D., Peoria, Ill.
and
Lieut. Bernard V. Wetchler (MC), U. S. Army

Adult circumcision is a minor procedure for which a safe, simple, and satisfactory local anesthetic technique is difficult to come upon. Although many different regional methods have been described,[1] they do not always result in a pain-free procedure, and frequently more agent than is necessary has to be used. Labat [1a] and Tuohy [1b] attribute tissue slough to local infiltration (particularly around the prepuce); whereas Fruin and McLaughlin [2] feel it is the cause of excessive postoperative edema and tardy healing. As a result of this, many clinics have had to resort to either spinal or general anesthesia, thereby greatly increasing operative and postoperative morbidity. For this procedure (which so often is done at the office), we feel that only a local anesthesia should be used. A regional method will be presented, which we believe fulfills all of the requirements for the ideal circumcision anesthetic.

INNERVATION

Many men are of the opinion that the dorsal nerves alone are responsible for the cutaneous innervation of the penis. This is not so. The nerve supply of the penis is derived from the pudendal nerve. It divides into two main branches, the dorsal and perineal nerves. The dorsal nerves supply the skin of the dorsolateral aspects of the penis and send terminal filaments to the glans. The perineal nerve subdivides into posterior scrotal and muscular branches.[3] We believe these posterior scrotal branches send out fibers that run paraurethrally, supplying sensation to the ventral portion of the penis and the mucous membrane of the urethra. We have attempted by selective nerve blocks to show this dual nerve supply to be present. By injecting the dorsal nerves with procaine hydrochloride, sensory anesthesia of the dorsal and lateral aspects of the penis and the entire glans with the exception of the prenulum was obtained. Paraurethral injections blocked sensation to the ventral penile surface and also rendered the frenular area and the urethral mucosa insensitive to stimuli. These four nerves, two dorsal and two paraurethral, are injected in our procedure.

CONSIDERATIONS OF THE PROCEDURE

Premedication.—The use of adequate sedative and hypnotic drugs preoperatively cannot be overly stressed in adding to the success of any regional procedure. Proper timing is of particular importance. Our patients were all given 100 mg. of secobarbital (Seconal) the night preceding surgery. On the operative day, 60 to 90 minutes prior to surgery, the patient received: secobarbital, 100 mg.; meperidine (Demerol) hydrochloride, 100 mg.; and scopolamine hydrobromide, 0.4 mg.

Solutions Used.—Procaine hydrochloride 1% was used in all cases. Sufficient epinephrine (Adrenalin) was added (5 drops of 1:1,000 epinephrine, delivered through a 22 gauge needle, to 20 cc. of 1% procaine hydrochloride) to produce a 1:200,000 concentration. This syringe should not be used for the block. A greater concentration of epinephrine may result in an almost bloodless operation, thereby increasing the possibilities of postoperative bleeding once the vasoconstriction has subsided. Epinephrine, 1:200,000, yields an optimum effect, should cause no untoward reactions, and is essential to the success of the procedure.

Method.—The operative area is cleansed. The dorsal nerves are blocked at the base of the penis. A 23 gauge

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Dr. Wetchler is now in private practice in Peoria, Ill.

[1] (*a*) Labat, G.: Regional Anesthesia: Its Technic and Clinical Application, Philadelphia, W. B. Saunders Company, 1928, p. 464. (*b*) Tuohy, E. B.: Regional Block Anesthesia for Operations on Perineum, Anus, Genitalia, and Lower Extremities, Anesthesiology 2: 369-387 (July) 1941. (*c*) Pitkin, G. P.: Conduction Anesthesia, Philadelphia, J. B. Lippincott Company, 1953, p. 702. (*d*) Lee, J. A.: Synopsis of Anesthesia, ed. 2, Baltimore, Williams & Wilkins Company, 1950, p. 208. (*e*) Adriani, J.: Techniques and Procedures of Anesthesia, Springfield, Ill., Charles C Thomas, Publisher, 1947, p. 314. (*f*) Magid, M. A., and Culp, O. S.: Ideal Penile Anesthesia Obtained by Injection of Corpora Cavernosa, Urol. 50: 508-513 (Oct.) 1943. (*g*) Cullen, S. C.: Anesthesia in General Practice, ed. 3, Chicago, Year Book Publishers, Inc., 1951, p. 209.

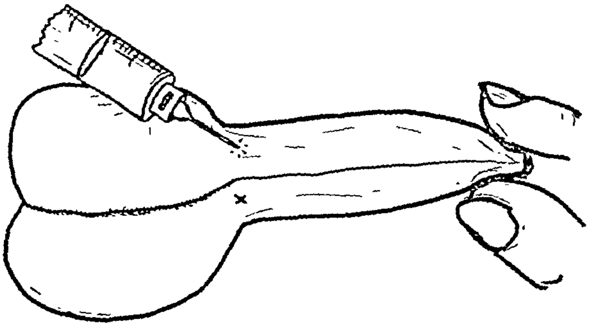
[2] Fruin, R. L., and McLaughlin, C. W., Jr.: Adult Circumcision: Report of 854 Operations on Naval Recruits, U. S. Naval M. Bull. 45: 42-46 (July) 1945.

[3] Morris, H.: Human Anatomy: A Complete Systematic Treatise, edited by C. M. Jackson, ed. 9, Philadelphia, P. Blakiston's Son & Company, Inc., 1933, p. 1097. Gray, H.: Anatomy of the Human Body, edited by W. H. Lewis, ed. 24, Philadelphia, Lea & Febiger, 1942, p. 985. Sobotta, J.: Atlas of Human Anatomy, English ed. 2, from German ed. 6, edited by J. P. McMurrich, New York, G. E. Stechert & Company, 1928.

needle is inserted perpendicularly through the skin on either side of the midline until a definite sense of resistence is experienced. For each side 3 cc. of 1% procaine hydrochloride is injected. If the needle pierces the corpus, pain will result. The penis is then pointed cephalad, so that its ventral surface is uppermost, and 2 cc. of 1% procaine is then injected bilaterally (at the base) into the grooves formed by the corpora cavernosa penis and the corpus spongiosum (see figure). These paraurethral injections are more easily accomplished by having the patient maintain gentle traction on the prepuce to keep the penile skin taut. A waiting period of up to 10 minutes is occassionally necessary before surgery can start. However, once the penis shows signs of sensory loss, the block will always be satisfactory. If the solutions are properly placed, analgesia is obtained almost immediately. Block of any of the four nerves may be repeated if necessary.

RESULTS

There have been no cases in which the anesthesia was unsatisfactory. This technique has been used in over 1,000 cases, including urethroplasties and procedures directly on the glans, without any operative or postoperative complications attributed to the anesthesia. No more than 10 cc, of 1% procaine hydrochloride should be used. We have been able to get excellent results using as little as 6 cc. of solution (2 cc. in each dorsal nerve and 1 cc. in each paraurethral space). We consider our method to be a perfectly safe anesthetic for office use.



Technique of block of paraurethral nerves.

SUMMARY AND CONCLUSIONS

Many of the local infiltration techniques used for adult circumcision do not yield a pain-free procedure, may use excessive local agent, and occassionally result in tissue slough and postoperative edema. A regional method combines ease of administration with uniformly excellent results, having been used in over 1,000 cases. It involves blockage of the dorsal and paraurethral nerve supply to the penis. The local drug in all cases was 1% procaine hydrochloride with epinephrine 1:200,000. The maximum amount of procaine hydrochloride necessary for any one patient should be 10 cc.; as little as 6 cc. has produced operative anesthesia. This technique has proved safe, simple, and satisfactory from both the anesthetic and urologic standpoints.

2718 Grand Blvd., Peoria, Ill. (Dr. Wetchler).

DIAGNOSTIC PROBLEMS

PRESENTATION OF CASE

John D. Thorpe, M.D., St. Louis

A 64-year-old widow entered Barnes Hospital, St. Louis, on Nov. 18, 1954, complaining of "bloating and belching" of about one month's duration. This was associated with intermittent pain in the left upper abdominal quadrant and anorexia. Later the pain radiated to her back. In the month preceding admission she had lost 10 lb. (4.5 kg.). Four days before she was admitted to the hospital her stools became gray and her skin became yellow.

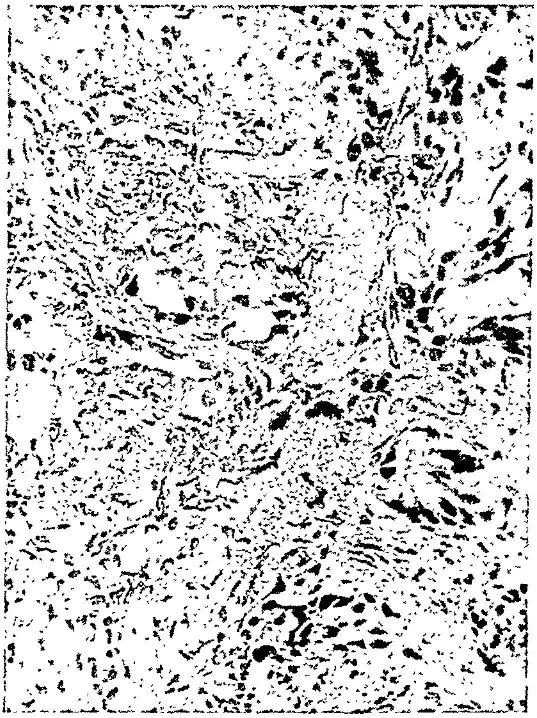


Fig. 1.—Photomicrograph of frozen section of needle biopsy specimen of pancreas, showing poorly differentiated adenocarcinoma growing in a background of fibrous tissue.

Physical Examination.—On admission her systolic blood pressure was slightly elevated; her skin and sclerae were icteric, and a loud grade 2 apical systolic murmur was heard. Her abdomen was not tender, but the liver edge was palpable 3 cm. below the right costal margin and was slightly tender. A tentative diagnosis of obstructive jaundice, with possible early carcinoma of the head of the pancreas, was made.

Laboratory Findings.—Blood cell counts revealed a mild anemia. The urinary bile pigments were increased. A stool was negative for occult blood and was grayish-white. Blood chemistry and liver function studies were

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From the Department of Surgical Pathology, Washington University School of Medicine.

consistent with obstructive jaundice. Complete gastrointestinal roentgenographic studies including gallbladder showed nonvisualization of the gallbladder. Subsequently the jaundice deepened and glucose tolerance tests, starch tolerance tests, and blood sugar determination indicated a diffuse involvement of the pancreas, possibly with tumor.

Course.—The patient was transferred to the surgical service, and an exploratory laparotomy was performed on Nov. 29, 1954. A mass the size of a golf ball was palpable in the head of the pancreas; the remaining pancreas was found to be indurated. A single lymph node in the gastrohepatic ligament was excised. Frozen section of this node showed no evidence of tumor. Frozen section of a superficial incisional biopsy specimen of the pancreatic mass showed pancreatitis. The duodenum was opened at the suggestion of the pathologist, and the ampulla of Vater was found to be normal in gross appearance. A Vim-Silverman needle was introduced from the duodenum into the pancreas, and frozen section of this needle biopsy material revealed carcinoma. Subsequently paraffin sections of the incisional biopsy specimen of the pancreatic mass also revealed carcinoma. A modified Whipple procedure was then carried out with surgical excision of the head of the pancreas, gallbladder, and the second portion of the duodenum. An anastomosis of the remaining pancreatic duct, common bile duct, and the stomach with the jejunum was made. The surgical specimen revealed a poorly differentiated adenocarcinoma with nerve sheath invasion and invasion of the excised portion of the duodenum (see figure). In six regional lymph nodes there was no evidence of metastasis.

In the immediate postoperative period, the patient did well. Convalescence was uneventful, and she was discharged 16 days following operation. She continued to do well and slowly gained weight until Feb. 25, 1955, when she returned to the hospital complaining of chills and fever, which had followed an upper respiratory infection. Despite antibiotics, her fever persisted, and she was readmitted to the medical service. At this time she had an elevated leukocyte count and hepatic function tests were within normal limits. The medical staff believed the patient had an ascending cholangitis, secondary to her operation. Because her febrile course continued, with little response to intensive antibiotic therapy, an exploratory laparotomy was performed. At this second operation two large masses were found in the liver. There was no obstruction referable to the previous operation, although much scarring was present. A biopsy specimen of the tumor mass in the liver showed metastatic carcinoma from the pancreas. Postoperatively her wound healed well, and three weeks later super-voltage roentgenotherapy using the betatron was begun over the area of the liver metastases. A total of 3,600 r was given over a period of two weeks. There was little subjective side-effect of the irradiation, and the patient was discharged, to be followed in the clinics.

COMMENT

Robert Elman, M.D., St. Louis

This experience illustrates several of the problems in pancreatic cancer. Operations entailing pancreatoduodenectomy are still formidable; this is particularly true with regard to cancer of the head of the pancreas. The high postoperative mortality rate and the poor long-range prognosis make this undertaking one that must be carefully planned and executed by a skillful surgeon. The reported cases of five year survivals for cancer of the head of the pancreas can easily be counted on the fingers of one hand; the results for cancer of the ampulla of Vater are somewhat better. In the face of such adverse experiences, the surgeon should have at his command all of the diagnostic assistance possible prior to completing any radical procedure. Chronic pancreatitis and carcinoma of the pancreas may mimic one another both in clinical findings and in gross appearance at operation. Frozen section at this time is mandatory, and the extensive surgical procedures necessary in pancreatoduodenectomy should not be carried out until a positive diagnosis of cancer is obtained.

In the event of a negative biopsy of the pancreas, the duodenum should be opened and the ampullary region investigated, because the obstructive lesion may arise in this location. Frozen section of the pancreas can be misleading because a tumor is often deeply situated and surrounded by a dense zone of inflammatory reaction. Carlson [1] and Probstein [2] cite examples of a radical operation on patients with only presumptive evidence of malignancy, whose lesions later proved to be benign. The pathologist should also be aware of the errors inherent in frozen section diagnoses in this region. Since the consistency, gross appearance, and degree of fixation of the suspected lesion are of little help in differentiating between pancreatitis and tumor, the surgeon is faced with the choice of a shunting procedure to relieve symptoms or a more extensive and radical resection. This choice is both difficult and important, for, despite the sporadic reports of five year survivals, it is only the more radical procedure that will give the patient a chance of an arrest of his disease if it proves to be malignant. Although the diagnosis of cancer was clearly suspected at the bedside in the case presented, the paucity of more exact methods emphasizes the need for exploration in many patients with jaundice the cause of which is otherwise difficult or impossible to determine.

It is difficult or impossible to establish the nature of a palpable pancreatic tumor found at operation to be the cause of jaundice. In this particular case the rounded, circumscribed mass was to palpation so much more characteristic of a neoplasm than the more diffuse induration of chronic pancreatitis that resection was decided on despite the negative results of the frozen section obtained by biopsy through the anterior surface of the

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From the Department of Surgery, Washington University School of Medicine.

[1] Carlson, R. L.: The Problem of Diagnosis at the Time of Operation in Tumors of the Head of the Pancreas, Surgery 28: 672-679 (Oct.) 1950.

[2] Probstein, J. G.: Sachar, L. A., and Rindskopf, W.: Biopsies of Pancreatic Masses, Surgery 27: 356-359 (March) 1950.

mass. Such biopsies are not always helpful because they may be negative in the presence of a deeply lying tumor or negative in the frozen but positive in the paraffin section as in this case. The experience reported here is unusual. A positive diagnosis by frozen section was reported in 39 of the last 41 biopsy specimens removed at operation in patients subjected to pancreatoduodenectomy for pancreatic carcinoma.[3] The recommendation of the pathologist to open the duodenum was a good one and should be made more often. Duodenotomy is useful diagnostically when it reveals disease at the ampulla or ulceration of the duodenum and in this case it led to a positive diagnosis. It is not surprising that this kind of biopsy was more revealing since the center of the tumor at this site is more accessible, although the use of the long needle may have been just as important. It is also probable that far less danger attends biopsy performed from within the duodenum than that through the external surface of the pancreas. We have seen repeatedly that duodenotomy is a safe and often a rewarding maneuver during operation in selected patients with biliary tract and pancreatic disease.

The rapid downward course of this patient despite adequate excision is tragic evidence that even with early operation, a history of symptoms of short duration does not necessarily give promise of a good result but rather may mean a rapidly growing tumor and a poor prognosis. All biologists know that regardless of therapy prognosis depends largely on the variable rate of growth of cancer (or conversely the variable resistance of the patient). Thus the small localized tumor readily and widely removed early may already have metastasized, whereas the large tumor with involved but accessible regional lymph nodes may still offer a good prognosis after adequate excision. Whether undue manipulation or biopsy of the tumor in the present case accelerated the tendency toward the rapidly developing hepatic metastases cannot be proved, but it reminds us that any mechanical trauma to malignant tissue is fraught with the danger of promoting spread.

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[3] Bartley, T. H.: Personal communication to the author.

Anticoagulants.—The realization that the anticoagulant treatment of thromboembolic disorders is a controversial subject brings up the question for the general practitioner as to how to proceed with his treatment of acute thromboembolic accidents, especially acute coronary occlusion. . . . If he is not familiar with the action of these drugs or does not have the necessary laboratory facilities, he would be wise to abstain from their administration. If, on the other hand, he feels competent to apply such therapy he must use it discriminately, according to the condition of his patients. He may follow those authorities who have a more aggressive attitude, or others with a more conservative approach. Statements that the "omission of anticoagulants in a case of acute myocardial occlusion creates a medical liability" are just as unfortunate as remarks that "the sole reason for prophylactic use of anticoagulants is the fear of litigations." Such opinions will create confusion among the medical profession. Let us all realize that the available anticoagulants may have faults and shortcomings, but represent at this time the best approach to the treatment of thromboembolic disorders.—H. B. Eisenstadt, M.D., and B. B. Elster, M.D., Are Anticoagulants Too Dangerous for General Use? *American Practitioner and Digest of Treatment,* July, 1955.

COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

R. T. STORMONT, M.D., *Secretary.*

Lente Insulin.—"Lente insulin is a sterile suspension, in a buffered water medium, of insulin modified by the addition of zinc chloride. Of the insulin contained in the preparation not more than 1 U. S. P. Unit of insulin per milliliter is in solution, approximately 70 per cent is crystalline, and the remainder is amorphous. Zinc-insulin crystals are used in such quantity that each milliliter of the preparation, when the precipitate therein is brought into uniform suspension, contains either 40 or 80 U. S. P. Units of insulin. The preparation contains, for each 100 U. S. P. Units of insulin not less than 0.20 milligram and not more than 0.25 milligram zinc (of which not less than 40 per cent nor more than 65 per cent is in the supernanant liquid), and not more than 0.65 milligram nitrogen. The preparation also contains not less than 0.15 per cent and not more than 0.17 per cent (w/v) sodium acetate, not less than 0.65 per cent and not more than 0.75 per cent (w/v) sodium chloride, and not less than 0.09 per cent and not more than 0.11 per cent (w/v) methyl-*p*-hydroxybenzoate. The pH of the finished product is not less than 7.1 nor more than 7.5." Certification of Batches of Drugs Composed Wholly or Partly of Insulin (19 Fed. Reg. 4153 [July 8] 1954).

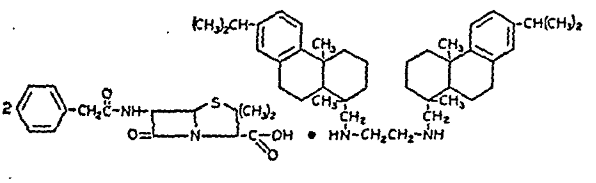
Actions and Uses.—Lente insulin is a mixture of minute particles consisting of approximately 70% crystalline zinc insulin and 30% amorphous zinc insulin, each component of which has a sufficiently high zinc content to make the mixture relatively insoluble at the pH of the blood. The proportion of the components provides an antidiabetic action that is intermediate in time between that of unmodified (regular) insulin and protamine zinc insulin. The time of action of lente insulin so closely approximates that of the modified protamine zinc insulin, isophane (NPH) insulin, that they can be used interchangeably. The onset of action of lente insulin is sufficiently prompt to control the after-breakfast rise in blood sugar, and its duration of activity is usually adequate to maintain blood sugar levels during fasting without the need for supplementary injections. Lente insulin, which contains no foreign modifying protein, is free from the possibility of producing local sensitivity reactions attributed to protamine or globin. Since lente insulin differs clinically from unmodified insulin only in its more prolonged action in lowering the blood sugar, its administration and dosage should follow the same principles that govern the use of insulin in general; however, lente insulin is not adaptable for use in place of unmodified insulin in dealing with diabetic emergencies that require immediate-acting intravenous insulin. (Also see New and Nonofficial Remedies 1955, under the general statement on insulin.)

Dosage.—Lente insulin is administered as a buffered suspension by deep subcutaneous injection. It should not be injected into underlying muscle and is never administered intravenously. The container vial should be rotated and inverted several times to insure uniform distribution of the suspended particles, but vigorous shaking and frothing should be avoided. The potency is expressed in terms of insulin units per cubic centimeter of suspension. The number and size of daily doses, time of administration, diet, and exercise must be determined by careful observation under laboratory control, with frequent blood sugar estimations and urinary sugar examinations in each individual case. Usually the most satisfactory time for injection is in the morning before breakfast. In newly developed, uncomplicated cases of average severity, an initial daily dose of 10 units may be administered before breakfast; this may then be increased by 3 to 5 units until proper control of blood and urinary sugar is achieved. In patients already under treatment with protamine zinc insulin or unmodified insulin or both, a beginning dose of lente insulin of approximately 20% fewer units may be substituted; this is then increased if necessary. Patients on isophane insulin may be transferred directly to lente insulin on a unit-for-unit basis. In certain severe cases, further regulation of diet may be important to obtain the optimum dosage level. As with protamine zinc insulin, the proportional distribution of food of one-fifth, two-fifths, and two-fifths respectively for the three meals may be advantageous. Afternoon and bedtime feedings may become desirable or necessary in some circumstances at the discretion of the physician.

Suspensions of lente insulin should be stored in a cold place, preferably a refrigerator. Exposure to freezing or high temperatures should be avoided. Vials in use also should be protected from strong light and the contents used as continuously as possible. A partially empty vial not used for several weeks should be discarded. A vial in which the precipitated suspension has become clumped or deposited on the wall of the container should not be used.

Eli Lilly & Company cooperated by furnishing scientific data to aid in the evaluation of lente insulin.

Hydrabamine Penicillin G.—Hydrabamine penicillin G is a mixture of crystalline penicillin G salts consisting chiefly of the salt of N,N'-bis-(dehydroabietyl)ethylenediamine, with smaller amounts of the salts of the dihydro- and tetrahydro-derivatives. The structural formula of hydrabamine penicillin G may be represented as follows:



Actions and Uses.—Hydrabamine penicillin G, a water-insoluble dipenicillin compound salt of a rosin amine base, is useful in the treatment and prevention of penicillin-susceptible infections. (See New and Nonofficial Remedies 1955, under the general statement on penicillin.) Its prophylactic use should be limited to streptococcic and pneumococcic infections of the throat and ears, to procedures such as tonsillectomy and dental extractions, and to patients with a history of rheumatic fever or rheumatic heart disease. As with other penicillin compounds, it is of no value for the treatment or prevention of the common cold or influenza.

Given orally, hydrabamine penicillin G promptly produces satisfactory penicillin blood levels when administered in doses of 300,000 to 600,000 units at 6 hour intervals. After 6 hours, the blood level produced by similar single oral doses falls rapidly. The onset of the maximum blood level produced by single oral doses is only slightly delayed when administered with meals, and the height and duration of the blood level is not affected appreciably by digestive function. Median blood levels obtained following oral administration of 600,000 unit doses are approximately twice those obtained with 300,000 unit doses. Animal studies indicate that the hydrabamine base portion of the compound is chiefly unabsorbed when given by the oral route; up to 90% is recovered in the feces with less than 1% found in the urine. Fecal excretion of the base is not significantly influenced by the normal intestinal flora.

Hydrabamine penicillin G has about the same toxicity in animals as benzathine penicillin G. Chronic toxicity studies in animals with doses far in excess of those recommended for human beings have not disclosed hematological or other abnormalities. Clinically, looseness of stools has been observed as a rare side-effect and urticaria has been attributed to the drug. Physicians should be alert to the possibility of allergic reactions, stomatitis, or monilial infection of the gastrointestinal tract. As with other penicillin compounds, allergic reactions may be controlled with antihistamine medication, but when this fails or when there are monilial complications, the drug should be discontinued.

Dosage.—Hydrabamine penicillin G is administered orally for acute infections in initial doses of 300,000 to 600,000 units every 6 hours for adults; subsequent dosage should be regulated according to the therapeutic response. In children, oral doses of 300,000 to 600,000 units four times daily may be adequate. To maintain continuous prophylaxis in rheumatic fever, approximately 300,000 units orally once or twice daily is suggested; patients with streptococcic infections who have had rheumatic fever or show signs of rheumatic heart disease should receive a total of 800,000 to 1,200,000 units per day (a smaller amount for children, larger for adults) in four divided doses for the first 5 days, and 600,000 to 750,000 units per day in three divided doses for the second 5 days. The entire 10 day treatment should be administered to such patients even though fever or symptoms disappear before the end of this period.

Abbott Laboratories cooperated by furnishing scientific data to aid in the evaluation of hydrabamine penicillin G.

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ECONOMICS OF MEDICAL CARE SINCE 1929

Elsewhere in this issue (page 41) is the first part of a two-part review of the economic position of medical care over the past quarter century by the A. M. A. Bureau of Medical Economic Research. The findings emphasize the "middle ground" position of the medical care "industry" during that period, 1929-1953, when gross national product rose from 104 billion to 365 billion dollars and personal consumer expenditures rose from 79 billion to 230 billion dollars. While dollars expended for medical care followed the over-all pattern of expansion, the Bureau notes that since 1930 the percentage of personal consumer expenditures going for medical care varied only slightly, from 3.99 to 4.35. Since World War II, however, the percentage has risen at a more rapid rate, from 4.14 to 4.35.

One factor that increased personal consumer expenditures for medical care, in dollars and as a percentage of the total, was the tremendous upswing since World War II in the number of births and the birth rate. The increased number of babies and young children has affected not only hospital and obstetric expenditures but has increased the demand for other medical services, since this youngest age group normally requires the most frequent medical attention. In the long run, of course, this imbalance will be corrected as today's toddlers become tomorrow's productive adults. Moreover, the reduction of the maternal mortality rate to a very low level has contributed to the high birth rate by reducing the mortal fear of childbearing almost to the vanishing point. The economic effect of the 1,200,000 increase in births from 1945 to 1953 has been obscured by statistics that do not show a division of medical expenditures into those for childbearing, disease, and accidents. Without such a breakdown, it is easy to misinterpret the increase in medical expenditures by ascribing it to a decline in the health of the American people or a disproportionate rise in medical care costs. The Bureau study has isolated as a second factor responsible for the increase in expenditures the item "medical care and hospitalization insurance." These expenditures represent premiums less claims paid; this difference is primarily overhead cost. The rapid growth in voluntary health insurance has resulted in an increase of 779 million dollars in this insurance overhead item from 1929 to 1953; this amount represents one-ninth of the total 7,064 million dollar increase for all medical care items. The increase in overhead costs is, of course, a price that must be paid for the rapid extension of voluntary health insurance.

Turning from expenditures to prices, the Bureau notes that the index for medical care and drug prices, as indicated by the U. S. Bureau of Labor Statistics' Consumer Price Index, (1935-1939 equal 100), stood at 173.9 in 1954—well below the 191.9 for the entire Index. The item indexes for physicians' and dentists' fees were still lower—160.3 and 174.5. The only component of the total medical care and drug index that showed a marked rise was hospital room rates, which was 322.1 in 1954; if the upward effect of this component were eliminated, the over-all medical care and drug index would be still lower. Newspaper releases about monthly changes in the cost of living usually refer to indexes based on the period 1947-1949 equal 100. This study points out that the new base indexes for some items, such as men's street shoes and women's cotton house dresses falsely imply that the prices of these items have not risen very high, whereas the true explanation is that they attained a very high level before 1949. Other items, such as rent and medical care, appear to be high priced because their price rise came so late in this 15-year period of inflation. However, this does not deny that the indexes for the medical and hospital items have risen more rapidly since 1949 than the entire Consumer Price Index.

A dollar spent for medical care in 1953 was not divided among the suppliers of these services and commodities in the same way as was a 1929 dollar. The 33 cents that the physician received in 1929 dwindled to 28 cents by 1953; the share of the dentist and that for drugs and sundries also declined. The compensatory increases were for all other medical care (which includes the rapidly growing insurance overhead item) from 17 to 20 cents; and for hospitals, from 14 to 26 cents. If these trends continue, the hospitals' share will exceed the physicians' share by 1960. The sharp rise in productivity, or output per physician, has counterbalanced the lag in physicians' fees and the decline in the physicians' share of the medical care dollar. Thus, the effective supply of physicians' services has increased much more rapidly than the number of physicians. Also, seeing a decreasing percentage of patients in their homes has resulted in a saving of the physician's time. Use of more auxiliary personnel in his office and in the hospital and use of more effective drugs have also been major factors in increasing the technological efficiency of the physician. As a result, the average income of physicians rose at almost exactly the same rate as the average earnings of all wage and salary workers over the period. From 1929 to 1949 the percentage rise was 108 compared to 109; and for 1949 to 1951, 13 compared to 15. Estimates indicate no change in this trend since 1951. The incomes of physicians and their patients continue to keep pace.

The various providers of services and commodities in the medical care "industry" can well be proud of a quarter century record that included great medical advances—the increased life expectancy at birth, the declines in infant and maternal mortality, and the development of new drugs and treatments—while little change occurred in the industry's relative economic position. Possibly this is our most efficient industry!

COMPONENT MEDICAL SOCIETIES

The American Medical Association Bureau of Medical Economic Research has recently published the results of a statistical survey of the 1,929 component medical societies in the 48 states. This 81-page study, known as Miscellaneous Bureau Publication M-95, "Component Medical Societies: Membership and Boundaries," is a compilation and interpretation of information furnished by the executive secretaries of the state medical associations. It includes a 72-page list by state of the name of the component society, the name or names of the counties included, the number of counties, and the membership; the summary at the end of each state list includes a membership array in descending order, the names (if any) of the unorganized and inactive counties, the total number of counties in the state, and the number of component societies. Membership of the component societies in 1954 totaled 156,598. This number should not be confused with the total membership of the state associations because of the variations in membership rules of the component societies; for example, the retired members in some component societies are not members of the state associations but continue to be members of their component societies. One-third (52,157) of this total membership was accounted for by the 24 largest component societies, each of which had more than 1,000 members in 1954; the 244 societies that had between 100 and 1,000 members had a total of 63,997, or 40.9% of the total; the remaining 40,444 members, or 25.8% of the grand total, were distributed among the 1,661 societies comprised of less than 100 members. There were 209 societies with 50 to 99 members; 102 societies had 40 to 49 members; 161 had 30 to 39; 253 had 20 to 29; 534 had 10 to 19; and 402 had fewer than 10 members. More specifically, 127 societies had less than five members and 275 societies had from five to nine members. The purpose of this compilation is not to discount the importance and need for component societies with few members.

A county outline map of the United States with four shaded patterns is a part of the Bureau publication. Shaded patterns indicate that 1,526 of the component societies cover just one county or less, 176 societies cover 2 counties, 154 societies cover more than 2 counties but fewer than 5, 64 societies cover 5 to 10 counties, and 7 cover 11 or 12 counties. At the extreme are two component societies—one in Mississippi and one in Virginia—that cover 13 counties each; 158 counties are unorganized, and 11 counties are inactive. There is a component society for each county in only seven states—Alabama, Arizona, Connecticut, Delaware, New Hampshire, New Jersey, and Ohio. At the other extreme are only three states with no single county society—Nevada, North Dakota, and South Dakota. The geographical patterns of these component societies along with the membership data may profitably be compared with the 757 medical service areas shown in Bureau Bulletin 94, "Distribution of Physicians by Medical Service Areas," and Bulletin 94A, "Map Supplement to Bulletin 94." The latter reflect the trading area principle, whereas the boundaries of component societies are political and were established many years ago. Although it would be outside the scope of any Bureau publication to urge a regrouping of component medical societies, comparisons with the 757 medical service areas and the data in this new Bureau publication will provide the officers of our constituent associations and component societies with a considerable amount of basic information for other states.

ESTABLISHING NEW PRACTICES

The physician seeking to take advantage of opportunities made possible by our growing suburban and small-city populations faces the problem of reconciling the financial obstacles with his professional and community-service goals. Local financing through banks and supply company credit often fall short of the working capital needs of a new practice, particularly for the young physician who lacks managerial "know-how." The American Medical Association and other organizations have stimulated communities seeking young physicians to offer personal and professional advantages such as a home or office facilities. Much progress has been made through these activities, but the financial problem is less easily tackled and solved. It poses further complications —that of aiding the physician but avoiding a "handout," and that of getting him started without putting him under obligations that may hamper his freedom in the practice of medicine. The Sears-Roebuck Foundation, with the cooperation and guidance of the A. M. A., has launched a program of assistance designed to encourage new medical practice units and improve medical care without threatening medical autonomy.

The foundation's Plan of Assistance (see this issue, page 38) will provide long-term, low-cost unsecured loans of up to $25,000 to physicians seeking to establish medical practice units. It requires that the physician first exhaust all local possibilities for financing, that his application indicate a need for a practice in the proposed locality and good possibilities for success and public service, and, that it give evidence of effort and thought in planning a well-organized, effective practice unit. Contributions made by the grantee in repaying the grant will be turned back into the fund for the establishment of further practices, thus providing what the foundation calls "built-in chain reaction." The plan also features advantages encouraging early repayment of grants to speed up establishment of more practices.

The foundation states that its plan is intended to "realize the principles of opportunity, incentive, mutual help and self reliance; to give the American people the best possible medical care; and to help the American physician build for himself the most effective, the most rewarding and the most satisfying life as a professional man." Continuation of the plan after 1955 depends on its reception and support by the medical profession. The plan relies on individual initiative and enterprise, requires that assistance be given only where it will generate independence, and is sustained entirely by those who benefit from it. As a proof that free medicine and free industry can solve medicoeconomic problems in a practical but optimistic way, it deserves support. As a proof that there are means of improving medical care without compromising medical self-reliance, it demands support.

ORGANIZATION SECTION

"NEW PRACTICE" ASSISTANCE GRANTS OFFERED

The Sears-Roebuck Foundation, in cooperation with the American Medical Association, has announced a new Plan for Assistance in establishing medical practice units with loans of up to $25,000, beginning in 1955. The unsecured, low-cost, 10-year loans will be available to physicians seeking to establish new practices but unable to arrange full local financing. The loans, intended especially for small or medium-size towns, growing suburbs, or rural communities, will be offered to physicians in at least one location in each of five regions covering the United States. Applications will be screened by a medical advisory board selected from A. M. A. Board of Trustees nominations. Investigations and the physician's application will provide the advisory board with information on these questions: Is the proposed location of the unit logical? What will it bring to its community? What is its chance of success? How much initiative has the applicant?

Under the terms of the note, payments of $12 a month per $1,000 borrowed are due after three years and must continue until repayment is complete. Accelerated payments may be made. Recipients also must pledge themselves to make a $240 tax-free contribution to the Sears-Roebuck Foundation for each $1,000 borrowed. Payments may be made at any time but must begin after the fifth year, at a rate of $2 per month per $1,000 for the fifth year; $3 a month for the sixth and seventh years, and $4 a month for the last three years. All money returned to the foundation will be used to help establish new practices. Two features are planned to encourage early repayment, so that these additional grants may be made: 1. As long as no repayments are being made on the principal—up to three years—interest at the rate of 6% per year ($5 a month per $1,000) is charged. Interest is canceled as soon as repayments begin. 2. All pledges are to be spread over the last six years of the term, but those not yet due will be canceled if the grant is repaid before 10 years. Grantees also must be covered by decreasing term life insurance with any insurance company for the amount of their grants excluding pledges.

Further information may be secured from the physician's placement office of the nearest state medical society, or from the Council on Medical Service, American Medical Association, 535 N. Dearborn, Chicago. Applications must be sent to the Director, Sears-Roebuck Board, in the region where the proposed practice would be located. The regional addresses are: Pacific Coast—2650 Olympia Blvd., Los Angeles 54; Southwest—1409 S. Lamar St., Dallas 2; Midwest—8 E. Congress St., Chicago 5; South—675 Ponce de Leon Ave., Atlanta, Ga.; East—4640 Roosevelt Blvd., Philadelphia 32.

This plan was formulated by the recently created medical advisory board of the foundation. The board is headed by Dr. F. J. L. Blasingame, Wharton, Texas, chairman, and Dr. Edwin S. Hamilton, Kankakee, Ill., vice-chairman, who, together with Dr. James R. McVay, Kansas City, Mo., are members at large. Regional members are Drs. Samuel P. Newman, Denver, Midwest; James Z. Appel, Lancaster, Pa., East; David Henry Poer, Atlanta, Ga., South; Eugene F. Hoffman, Los Angeles, Pacific Coast; Robert D. Moreton, Fort Worth, Texas, Southwest; Drs. J. A. Bargen, Rochester, Minn.; Lawrence R. Dame, Greenfield, Mass.; J. P. Culpepper, Hattiesburg, Miss.; Raymond M. McKeown, Marshfield, Ore.; and Alfred R. Sugg, Ada, Okla. Ex-officio members are Drs. Elmer Hess, Erie, Pa., A. M. A. President; Gunnar Gundersen, LaCrosse, Wis., Chairman of the Board of Trustees; and Dwight H. Murray, Napa, Calif., President-Elect.

SYMPOSIUM ON HEALTH HAZARDS OF CHEMICALS

The A. M. A. Committee on Toxicology and the Committee on Pesticides will sponsor a symposium on the health hazards of chemicals in the home, agriculture, and industry during the annual meeting of the American Association for the Advancement of Science. The symposium will be held before the section on pharmacy, Dec. 29 in the Henry Grady Hotel, Atlanta, Ga. There are about 25,000,000 chemical products now available for use in the three fields to be discussed, and it is estimated that 3,300 deaths occur annually from misuse of chemicals. The committees have gathered a panel of experts to discuss the problem before scientists from many fields. Bernard Conley, Secretary of the A. M. A. Committee on Pesticides, will be moderator. The symposium members will include Dr. Lester M. Petrie, director of the preventable disease service, Georgia Department of Health, Atlanta, Ga.; Dr. Wayland J. Hayes, chief, toxicology section, Communicable Diseases Center, U. S. Public Health Service, Savannah, Ga.; Dr. Irvin Kerland, associate medical director, federal Food and Drug Administration, Washington, D. C.; and Mrs. Veronica Conley, Assistant Secretary, A. M. A. Committee on Cosmetics.

A STUDY OF MULTIPLE SCREENING

The Council on Medical Service of the A. M. A. has just revised its pamphlet on multiple screening. The present report includes descriptions of 33 multiple surveys in 14 states and the District of Columbia, ranging from small surveys in a single company to statewide projects. Costs and results have been given when such information was available. Copies can be had by writing to the Council on Medical Service, 535 N. Dearborn St., Chicago 10.

FEDERAL MEDICAL LEGISLATION

First Session, 84th Congress

Military Dependents' Medical Care

Senators Russell (D., Ga.) and Saltonstall (R., Mass.), in S. 2720, and Congressman Vincent (D., Ga.), in H. R. 7792, introduced the administration's proposal "to provide medical care for dependents of members of the Armed Forces of the United States." This replaces S. 934 and H. R. 2685 previously reported. The legislation follows the basic recommendations of the 1953 Molton committee and would authorize medical care for dependents of the members of the armed services. "(*a*) in military medical facilities subject to the availability of space, facilities, and capabilities of the medical staff; (*b*) through an insurance plan . . . and (*c*) from civilian medical sources . . . for dependents of members of the Armed Forces not participating in an insurance plan. . . . Provided that no military medical facilities are available for such dependents." The measure specifically states that: "The medical care of dependents of members of the Armed Forces provided for in military medical facilities shall in no way interfere with the primary mission of the military medical services to provide proper medical care for military personnel. The Secretary of Defense may establish charges for any subsistence given dependents of members of the Armed Forces in connection with medical care in military facilities. (*c*) As a restraint on excessive demands for medical attention in military medical facilities, additional charges may be imposed for out-patient care but such charges shall be limited to such amount, if any, as may be established by the Secretary of Defense pursuant to a special finding that such charges are necessary. . . ."

"Sec. 5. The Secretary of Defense is authorized to contract for the medical care, under the provisions of this Act, of dependents of members of the Armed Forces, under such private insurance plan or plans as he shall deem appropriate, subject to the following limitations: (*a*) Members of the Armed Forces shall be entitled to participate in such plan or plans upon filing of an application to participate on forms provided by the Department of Defense. (*b*) The cost of each private insurance contract shall be apportioned between the member of the Armed Forces and the Government. The contribution by the member of the Armed Forces shall not exceed 30 per centum of the monthly cost and not to exceed $3 per month estimated at the time of his filing of a request to participate in such a plan. (*c*) Members of the Armed Forces may select such optional coverage as such plan shall provide. (*d*) Payment by a member of the Armed Forces of his share of the cost of the premium of such private insurance contract shall be by allotment of pay as the Secretary of Defense shall prescribe. (*e*) Such private insurance plan shall not provide for any limitation on periods of authorized medical care for dependents of members of the Armed Forces for each accident or illness. (*f*) The Secretary of Defense, in contracting for such insurance plan or plans, shall provide for a reduction of the costs to the extent that dependents of members of the Armed Forces participating in such plan are cared for in military medical facilities. (*g*) The charges for medical care rendered under such private insurance plan by civilian physicians and surgeons and hospitals and treatment facilities under civilian control shall not be at rates in excess of the physician's, surgeon's, hospital's, or treatment facility's standard schedule of charges for semiprivate accommodations to the general public or to group-insurance patients (whichever is lower) for the services rendered.

"Sec. 6. Dependents of members of the Armed Forces who do not elect to participate in an insurance plan as authorized under section 5 of this Act and who are in need of medical care, for which military medical facilities are not available, because of inaccessibility, lack of space, facilities, or capabilities of the medical staff, are authorized to receive medical care as provided in this section for duly licensed physicians and facilities under civilian control. However, no funds shall be expended for professional service except in accordance with schedules of maximum fees and costs for such professional service established by the Secretary of Defense. He may consult with accredited medical associations and any other agencies which he considers appropriate. The payment for services rendered by hospitals and clinics shall be at rates not in excess of the hospital's or clinic's standard schedule of charges for semiprivate accommodiations to the general public or to group-insurance patients, whichever is lower, for the service rendered. As a restraint on excessive demands for medical care, dependents receiving medical care in civilian medical facilities, under the terms of this section, shall be required to pay 30 per centum of the first $100 plus 15 per centum of the cost of the remainder of inpatient care and 30 per centum of the cost of outpatient care. However, in cases of protracted periods of illness or other hardship cases, the Secretary of Defense may provide for the transfer of such dependent to a military facility or take such other appropriate action to alleviate such hardship.

"Sec. 7. As used in this Act—(*a*) The term 'member of the Armed Forces' includes—(1) a person, appointed or enlisted in, or inducted, called or conscripted into, the Army, Navy, Air Force, or Marine Corps, or members of the reserve components who have entered on extended active duty in excess of ninety days but not including persons on duty for training purposes only; and (2) a member or former member of the Army, Navy, Air Force, or Marine Corps, who is entitled to retirement . . . other than those entitled to receive retired or retirement pay [as members of the Reserve]" and those nonregular officers of the Army, Navy, and Marine Corps placed on the emergency retired list under the act of May 24, 1928, as amended, by reason of disability incurred in World War I and their dependents who are furnished medical care by the Veterans Administration.

"(*b*) The term 'dependent' includes—(1) in the case of any male member—(A) his lawful wife; (B) his unmarried dependent children. The term 'children' shall in addition to the members' own or lawfully adopted children include stepchildren, or such other children as depend upon the member for support and live with the member in a regular child-parent relationship; children shall not be included in the term 'dependent' who are over the age of twenty-one years, except such children who are incapable of self-support because of being mentally or physically incapacitated and who are in fact dependent on the member for over half of their support; (C) his parents and parents-in-law if in fact dependent on him for over half of their support; and (2) in the case of any female member—(A) her lawful husband, if in fact dependent on her for over half of his support; (B) her unmarried dependent children. The term 'children' shall in addition to the members' own or lawfully adopted children include stepchildren, or such other children as depend upon the member for support and live with the member in a regular child-parent relationship; children shall not be included in the term 'dependent' who are over the age of twenty-one years, except such children who are incapable of self-support because of being mentally or physically incapacitated and who are in fact dependent on the member for over half of their support; (C) her parents and parents-in-law if in fact dependent on her for over half of their support; and (3) unmarried widows and the dependent children of persons who were members of the Armed Forces, as defined in this Act, at the time of death are authorized medical care under the terms of this Act.

"Sec. 8. Medical care under this Act shall be limited to the following: (*a*) Diagnosis; (*b*) Treatment of acute and medical and surgical conditions; (*c*) Treatment of contagious diseases; (*d*) Immunization; and (*e*) Maternity and infant care.

"Sec. 9. Hospitalization shall not be authorized dependents of members of the Armed Forces for the following: (*a*) Domiciliary care and chronic diseases; (*b*) Nervous and mental disorders (except for diagnostic purposes); and (*c*) Elective medical and surgical treatments as determined by the cognizant physician.

"Sec. 10. (*a*) Dependents of members of the Armed Forces shall not be provided prosthetic devices, hearing aids, orthopedic footwear, and spectacles, except that outside the continental limits of the United States and at remote stations within the continental limits of the United States where adequate civilian facilities are not available, those items, if available from military stocks, may be provided to dependents at prices representing full cost to the Government. (*b*) Dependents of members of the Armed Forces shall not be provided—(1) ambulance service,

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From the Washington Office of the American Medical Association.

except in acute emergency, and (2) home calls except in special cases where it is determined by the cognizant physician to be medically necessary.

"Sec. 11. Except outside the continental limits of the United States and in remote areas within the continental limits of the United States where adequate civilian dental facilities are not available, *dental treatment* for dependents of members of the Armed Forces will be restricted to emergency dental care and dental care as a necessary adjunct to medical or surgical treatment. Emergency dental care is defined as the care required to relieve pain and suffering and shall not include any permanent restorative work or dental prosthesis. Dental treatment which may be provided dependents of members of the Armed Forces under this section will be obtained in military dental facilities and will depend upon the availability of space, facilities, and capabilities of the dental staff. Dependents of members of the Armed Forces are not authorized dental care at government expense through civilian dental sources, except as a necessary adjunct to inpatient medical or surgical treatment."

The Assistant Secretary of Defense in transmitting the legislation to Congress said that further technical improvements "in all probability may be proposed such for example, as the coverage of widows and the dependents of decreased military personnel and the extent to which military personnel may be authorized on their own option to move in and out of insured status." The annual cost for 2,204,500 dependents as of Dec. 31, 1954, would be 76 million dollars. These measures were referred to the Committee on Armed Services.

Federal Employees Contributory Health Insurance

Senator Johnston (D., S. C.) and Senator Carlson (R., Kan.), in S. 2425, and Congressman Rees (R., Kan.), in H. R. 7241, have introduced the administration's proposal for voluntary contributory health insurance for federal civilian employees. The employee would have the choice of two types of coverage: local nonprofit plans furnishing health services, employee-sponsored plans, or indemnity plans, providing 75% of the employees in the particular operation enroll in such a plan (Blue Cross and Blue Shield could qualify in this category); or a uniform national indemnity plan contracted for by the Civil Service Commission.

The federal government's contract in either plan would be limited to one-third of the premium of $52 a year for employees with dependents, or $19.50 for single employees, whichever is less. Under the uniform plan the cost to a single employee could not exceed $39 a year, and for an employee with dependents the cost could not exceed $104 a year. The uniform policy would provide daily board and room, with the benefit not to exceed $15 for each day of hospital confinement not exceeding 70 days. Additionally, $300 would be allowed for other hospital services and supplies. Maximum maternity benefits would be $125 for pregnancy in lieu of all other hospital benefits. Surgical benefits would be limited to $250. Major medical cost insurance would also be available with a $10,000 limit. The employees would have to meet the first $100 of expense after expiration of basic benefits before the major medical cost policy would become effective, after which they would be assessed 25% of the costs, with the policy paying a maximum 75% or $10,000, whichever is less. The Civil Service Commission would have the right to approve any participating insuring program and its health service benefits. An advisory board of 5 to 11 federal employees appointed by the chairman of the Civil Service Commission would advise policy. These measures were referred to the Committee on Post Office and Civil Service.

Veterans' Medical Care

Senator Smith (R., N. J.), in S. 2406, Senator McCarthy (R., Wis.), in S. 2483, and Congresswoman Church (R., Ill.), in H. R. 7355, have introduced identical measures to carry out part of the Hoover commission's recommendations on federal medical services. All appropriations for general hospitals for the Veterans Administration would be rescinded, except where construction has actually begun or where a contract has been executed. Authorization would also be rescinded if no appropriations have been made. The veterans' signed statement of inability to pay for hospital care for non-service-connected illness or disability would be subject to verification by the Veterans Administration and if found "not to be substantiated, such administration is authorized to collect the amount of the medical costs incurred, together with any amount paid in connection therewith for transportation of the veteran to and from the Veterans Administration facility, in such manner as the Administrator shall prescribe."

Veterans would be requested to assume an obligation to pay the cost without interest at some future date if they are financially able to do so. For hospital or domiciliary care for disease or disability not due to military service, the Veterans Administration would be "authorized to furnish out-patient treatment and care, prior to or following hospitalization, to any veteran of any war who was not dishonorably discharged, who is suffering from disability, disease or defect (not including neuropsychiatric ailments prior to hospitalization), who is in need of outpatient dispensary care, and who is unable to pay therefore, irrespective of whether the disability, disease, or defect was due to service. Any veteran who receives such out-patient treatment or care shall be required to assume an obligation for the future payment of the costs thereof," if the disease or injury was not service-connected. The Senate bills were referred to the Committee on Labor and Public Welfare; the House bills were referred to the Committee on Veterans' Affairs.

Federal Hospital Service Other Than Military

Senator Smith (R., N. J.), in S. 2407, Senator McCarthy (R., Wis.), in S. 2481, and Congresswoman Church (R., Ill.), in H. R. 7346, have introduced identical measures to carry out part of the recommendations of the Hoover commission Report on Federal Medical Services. Major provisions are: (1) American merchant seaman "shall no longer be entitled, in accordance with regulations, to medical, surgical, and dental treatment and hospitalization without charge at hospitals and other stations of the Public Health Service"; and (2) Coast Guard, the Coast and Geodetic Survey, and Public Health Service personnel would be provided medical, surgical, and dental treatment and hospital care only at the nearest available facilities of the military medical services. Medical advice, outpatient treatment, and hospitalization furnished to the dependents of the Coast Guard, Coast and Geodetic Survey, and Public Health Service would be "reimbursed by the agency whose personnel or dependents thereof received such treatment or hospitalization to the extent that such cost is not charged to the officer, enlisted person, or member of a crew concerned."

Medical, surgical, hospital services for the Bureau of Employees Compensation, supplied now at the Public Health Service institutions, would be provided in hospitals other than veterans, with costs reimbursed by the Department of Labor. As soon as practicable the surgeon general would close all veteran hospitals of the Public Health Service and all "other institutions, clinics, stations, and facilities thereof, except (1) those used for the care, detention, and treatment of narcotic addicts and persons afflicted with leprosy, mental illnesses, or tuberculosis, (2) facilities for the care of Indians, (3) Freedman's Hospital, (4) those used for research activities, including the National Institutes of Health, and (5) the clinics and other facilities necessary for making the medical examinations authorized for Federal employees and . . . for making the physical and mental examinations of aliens. . . . Any hospitals and other institutions, clinics, stations, or facilities which are closed as herein provided may be disposed of to the States or local communities or in such other manner as the Surgeon General may prescribe." The Senate measures were referred to the Committee on Labor and Public Welfare; the House measure was referred to the Interstate and Foreign Commerce Committee.

Mortgage Insurance for Nursing Homes

Congressman Priest (D., Tenn.), in H. R. 7608, would authorize federal mortgage loan insurance for construction of nursing homes both nonprofit and proprietary. The mortgage insured could not exceed 80% of the estimated value of the property. The reinsurance would not exceed 95% of the loan, and the loan could not exceed 30 years. The provisions are similar to those of Title II of the administration's omnibus health bill, S. 886 and H. R. 3458. This measure was referred to the Interstate and Foreign Commerce Committee.

BUREAU OF MEDICAL ECONOMIC RESEARCH

This survey of the economic position of medical care during a quarter century will be concluded in next week's issue of The Journal. *It will be reprinted, with additions, by the Bureau of Medical Economic Research as Bulletin 99; a copy may be obtained from the Bureau, 535 N. Dearborn, Chicago 10.*—Ed.

THE ECONOMIC POSITION OF MEDICAL CARE, 1929-1953

Frank G. Dickinson, Ph.D.
and
James Raymond, M.A., Chicago

The recent publication of "National Income," 1954 edition (a supplement to the *Survey of Current Business*), by the United States Department of Commerce warrants a review of the position of medical care in the American economy during the quarter century covered by the data in this new publication, 1929-1953. Previous publications of the Bureau of Medical Economic Research have summarized the national aggregates for medical care for the years 1929-1952. (A list of these Bureau publications by title is presented in Bureau publication M-90.) The new series makes minor changes for the earlier years and presents new data for 1953.

The American economy has undergone so many changes during the past quarter century that an attempt to treat medical care in isolation would be unsuccessful. Yet, even a reasonably satisfactory thumbnail sketch of the economic development of the United States is far beyond the scope of this article. We shall try instead to provide some answers to the following questions regarding the position of medical care in a changing economy: 1. What are some of the highlights in the expansion of the American economy during this quarter century? 2. What does the Department of Commerce mean by the term "personal consumer expenditures?" 3. What is the largest item of personal consumer expenditures? 4. What is meant by the term "personal consumer expenditures for medical care?" 5. How much was spent annually for medical care, 1929-1953, and how do these amounts compare with other expenditures and with total personal consumer expenditures? 6. How has the composition of the medical care dollar changed? 7. Have medical care prices since 1935 risen more rapidly or less rapidly than the prices of commodities and services widely purchased by consumers? 8. Have the average weekly wages of industrial workers risen less rapidly or more rapidly since 1935 than the cost of specified items of medical care? 9. Have the average incomes of physicians risen more rapidly or less rapidly than the average incomes of the gainfully employed? 10. Have the technological efficiency—"output per physician"—and improvements in the quality of medical care kept pace with comparable changes in other parts of the American economy?

Introduction

The 25-year period for which medical care costs are analyzed here is one-quarter of that century that may well go down as the hundred years of most rapid change in recorded civilization. The changes in medical care are an integral part of this vortex of change. The people have retained most of their freedom to make individual decisions as to which of the many desired material things or services they will place first, second, and third in their priorities. The purchase of medical care can, therefore, be discussed in meaningful fashion only in relation to other purchases. The kind of medical care that is now being purchased, in contrast to the medical care of 1929, can only be fully appreciated when considered along with other major changes in the pattern of consumer expenditure. Most of the significant changes, as assessed from the vantage point of the present, were not, of course, foreseen in 1929. Some very well qualified people prognosticated, in the year 1929, a maximum United States population of less than 150 million persons. Yet the tremendous, and wholly unanticipated, growth of the United States population since 1929 is probably the most outstanding feature of this quarter century (from 122 million to 158 million in 1953). Along with this great increase of 30% in population, there have been changes in the age composition. The number of people age 65 and over has increased by leaps and bounds. In the medical field this has meant the rise of a new specialty, geriatrics. It has also meant the development of many social and economic activities focused upon the elderly and/or retired person.

Linked to the increase in numbers of people have been two other changes of great significance: first, the increase in the proportion of the United States population living in urbanized areas and the concomitant increase in the numbers of these persons who are dispersed in the suburbs of metropolitan centers; and, second, the well-known developments in the amount and speed of all kinds of transportation, but especially the increase of 101% since 1929 in numbers of automobiles. Both of these linked developments were, of course, well under way in 1929. They were intimately tied up with the processes of specialization and centralization, characteristics not only of industry but also of the newer brand of agriculture. City boundaries burst at the edges, and population flowed into the outskirts. The suburb—with its white picket fences, its elementary schools, its shopping centers, and its physicians' and dentists' offices—came into full bloom. So marked was this outward thrust of city workers that it was necessary for the United States Bureau of Census to change its definition of "urban population"; 64% of the total population of the United States in 1950 was urban.

The development of diverse forms of transportation in this process of urbanization has profoundly affected the distribution of medical care. The great bulk of patients developed the habit of going to their personal physicians' offices, from where they were funneled, by the system of referrals, to the specialist in the adjacent office, to a nearby clinic, to a perhaps more distant hospital or to a great medical specialty center several air hours away. All of these developments have enabled the medical team of 1953 to handle more patients more successfully than was done in 1929.

ECONOMIC GROWTH

The most important economic events of the 25-year period are summarized rather well and very briefly by the United States Department of Commerce in its recent publication. "In broad outline this period embraces the following sequence of events: the precipitous fall from the prosperity of 1929 into the deep depression of the early nineteen-thirties; the subsequent recovery, interrupted by the brief recession of 1938, but then continuing through the remaining prewar years; the tremendous performance of the economy in the prosecution of World War II; reconversion and the postwar boom, with attendant inflationary strains; the mild business recession of 1949; and the rapid recovery of 1950, merging in the latter half of that year into the period of hostilities in Korea" (page 1).

The tremendous growth of the United States economy is reflected in the fact that gross national product (the nation's output of goods and services in terms of its total market value) rose from 104 billion dollars in 1929 to 365 billion dollars in 1953—an increase of 250%. From the consumer's standpoint there have been great changes in the make-up of this gross national product: the frozen food industry was born and grew to near maturity, home appliances not only increased but completely changed character, and sulfonamide drugs and the antibiotics (which have greatly aided the medical profession) were developed and exploited fully only during and after World War II. The inflation associated with World War II and with the Korean conflict resulted in the level of prices in 1953 being more than two-thirds above that of 1929. When allowances are made for this factor, the physical volume of the nation's output, as measured by the gross national product in constant prices, rose 105% over the period. This increase amounts to 57% in real

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Director (Dr. Dickinson) and Staff Associate (Mr. Raymond), Bureau of Medical Economic Research, American Medical Association.

Regina Evans Holloman, research assistant, assisted in the preparation of the tables.

Because of space limitations table 5 and the appendix have been omitted and will appear in the Bureau's reprints.

output per capita. The growth results largely from the terrifically rapid rate of technological change and improvement that have made possible the gains in productivity per unit of measure. All domestic purchasing groups have shared in the increased volume of production. There has been a marked shift from private to government use of the nation's output; in 1929 government purchases of goods and services absorbed 8% of the gross national product, but in 1953 they took 23.5%.

Real product per man-hour was well over half again as large in 1953 as it was in 1929; this implies an average annual rate of increase somewhat greater than 2%. The product per physician-hour has increased; physicians are now treating more people and more successfully than they did in 1929. Apparently, the product per hospital-hour has increased. The average length of hospital stay has been significantly decreased, but there is often need of a platoon of personnel to participate in the treatment given to one person; e. g., the heart operation, the treatment of malignancies by radiation, the use of an artificial kidney, and many procedures unknown in 1929. Moreover, the tools or equipment used in hospitals are more numerous and diverse than they were 25 years ago, and some of them are quite expensive.

TABLE 1.—*Selected Personal Consumer Expenditures in the United States, 1929-1953 (Millions of Dollars)*

Year (1)	Total Medical Care (2)	Physicians' Services (3)	Hospitals (4)	Drugs and Sundries (5)	Dentists' Services (6)	All Other Medical Care (7)	Alcoholic Beverages (8)	Recreation (9)	Tobacco (10)	Personal Care (11)	Jewelry (12)	Total Columns (3)-(12) (13)	Total Consumer Expenditures (14)
1929	$2,937	$ 959	$ 403	$ 604	$ 482	$ 489	.....	$4,331	$1,695	$1,116	$ 560	$10,639	$78,952
1930	2,835	924	404	568	463	476	.....	3,990	1,450	1,039	513	9,827	70,968
1931	2,549	819	395	517	408	410	.....	3,302	1,489	979	328	8,647	61,333
1932	2,127	661	386	449	312	319	.....	2,442	1,322	817	252	6,960	49,306
1933	1,983	617	363	427	276	300	$ 665	2,202	1,233	660	172	6,915	46,392
1934	2,164	678	369	468	295	354	2,000	2,441	1,367	760	198	8,930	51,894
1935-1939 (average)	**2,598**	**821**	**448**	**546**	**345**	**438**	**3,177**	**3,145**	**1,621**	**916**	**302**	**11,759**	**63,677**
1940	3,018	913	527	635	419	524	3,600	3,761	1,883	1,036	414	13,712	71,881
1941	3,298	957	555	725	459	602	4,185	4,239	2,108	1,162	562	15,554	81,875
1942	3,735	1,048	649	848	505	685	5,080	4,677	2,381	1,354	743	17,970	89,748
1943	4,189	1,092	752	1,014	539	792	5,840	4,961	2,677	1,616	968	20,251	100,541
1944	4,705	1,321	846	1,072	573	893	6,775	5,422	2,717	1,834	1,050	22,503	109,833
1945	5,042	1,370	925	1,138	620	989	7,485	6,139	2,972	1,982	1,243	24,863	121,699
1946	6,104	1,720	1,163	1,271	772	1,178	8,360	8,621	3,478	2,086	1,506	30,155	146,617
1947	6,817	2,020	1,397	1,313	784	1,303	8,620	9,352	3,869	2,253	1,463	32,374	164,973
1948	7,385	2,203	1,591	1,358	833	1,400	7,930	9,603	4,147	2,286	1,435	32,786	177,609
1949	7,702	2,312	1,730	1,350	857	1,453	7,730	9,801	4,252	2,259	1,360	33,104	180,598
1950	8,276	2,435	1,975	1,406	869	1,591	7,880	10,768	4,401	2,355	1,385	35,065	194,026
1951	8,780	2,528	2,167	1,516	888	1,681	8,200	10,961	4,701	2,488	1,477	36,607	208,342
1952	9,382	2,676	2,398	1,569	906	1,833	8,725	11,368	5,092	2,573	1,561	38,701	218,424
1953	10,001	2,815	2,602	1,615	943	2,026	8,865	11,892	5,310	2,641	1,560	40,269	230,080

Sources for tables 1-5: United States Department of Commerce, Office of Business Economics, National Income: A Supplement to the *Survey of Current Business*, 1954 edition; table 30, pp. 206-208, and personal correspondence with the Office of Business Economics. See also chart I.

The methods of estimation, reviewed in the appendix, are designed to exclude governmental and business expenditures for each item of personal consumer expenditures. Brief descriptions of the items (not the type of expenditure), arranged by column numbers, are presented below.

Because of rounding, some totals in this and other tables are not the sums of the individual entries.

(2) Total Medical Care: The sum of columns (3)-(7).

(3) Physicians' Services: Aggregate personal consumer expenditures are derived by the Office of Business Economics by multiplying (a) the number of physicians in independent practice (full or part time), by (b) their average gross income received from individuals (90% of total) as determined from questionnaire surveys of the profession. (Net income is three-fifths of their gross income.) Most of the income surveys used were conducted by the National Income Division. The estimates of number of physicians were adjusted for changing number of professional practitioners in the armed forces after 1940.

(4) Hospitals: This component consists of payments by patients to proprietary hospitals, and of current expenditures (including some depreciation) of nonprofit hospitals in providing care of patients.

(5) Drugs and Sundries: Expenditures include items not purchased in hospitals. Estimates for base years were based on manufacturing census and export and import statistics for selected items. Adjustments were made for the group of products for transportation costs, trade margins, taxes, and trade inventory changes. For other years estimates were based on extrapolation by retail sales series. Items include biological products, botanical drugs, medicinal chemicals, and pharmaceutical preparations; druggist and medical rubber sundries; clinical thermometers, hypodermic syringes and needles; surgical dressings; arch supports and other foot appliances; adhesive plaster, elastic stockings, elastic braces, suspensories, and other elastic supports; other surgical and orthopedic supplies and appliances; personal safety devices not elsewhere classified; and sanitary napkins and tampons.

(6) Dentists' Services: Estimates were derived by multiplying (a) the number of dentists in independent practice (adjusted for changing numbers in the armed forces after 1940), by (b) their average gross income received from individuals, determined from questionnaire surveys of the dental profession.

(7) All Other Medical Care: Included are (a) ophthalmic products and orthopedic appliances—field glasses; terrestrial and celestial telescopes; ophthalmic frames, mountings and parts; sun glass frames; ophthalmic focus lenses; sun or glare glasses and sun goggles; other ophthalmic goods; electric hearing aids; hearing aid batteries; artificial limbs (prosthetic); trusses and othopedic appliances (braces). Estimates are adjusted for such things as transportation costs and trade margins; (b) medical care and hospitalization insurance—premiums less claims: accident and health insurance, mutual accident and sick benefit associations, and gr [illegible] tions, administrative and medical expenses of [illegible] and students' fees for medical care; and (c [illegible] s—services of osteopathic physicians, chiropractors, chiropodists and pediatrists, private duty trained nurses, and the miscellaneous curative and healing professions. These estimates are, in the main, based on multiplication of the number of persons in independent practice by average gross income as established in questionnaire surveys. For the years for which such direct information is unavailable, extrapolation is for the most part based on income of physicians, which is felt to be parallel.

(8) Alcoholic Beverages: Includes distilled spirits, wine and beer, packaged form and by the drink.

(9) Recreation: See footnote to table 5, column (10).

(10) Tobacco: Includes all tobacco products, adjusted for tax-free and imported products.

(11) Personal Care: See footnote to table 5, column (4).

(12) Jewelry: Includes purchases of jewelry and watches.

Changes have also occurred in the flow of national income (the aggregate earnings of labor and property that arise from current production). There was a marked rise in the contribution of manufacturing industries, a 3% rise in the contribution of the wholesale and retail trade industries, and a decline in the percentage contributed by the agricultural sector. Significantly, the percentage of total national income contributed by government rose from 6% in 1929 to 11.5 in 1953; these two percentages represent only the labor directly employed by government and government enterprises. Moreover, the increase was almost entirely in the federal government component. An item of outstanding importance in the employee's share of national income is that of wage and salary supplements; they were an inconsequential element in 1929, but in 1953 they were 3.5% of national income. This growth represents the rise and expansion of the various insurance programs and of private pension, health, and welfare funds. Unfortunately, much of the increase in the total of personal income (current income received by persons from all sources) has been absorbed by direct personal taxes. These taxes, which were 3% in 1929, increased to 12.5% of personal income in 1953. Taxes, in dollars, are now 14 times as large as they were in 1929, and this relative increase is entirely in the federal government component. After deducting these taxes, there remained a total disposable personal income in 1953 of 250 billion dollars as compared with 83 billion dollars in 1929; with consumer prices averaging 59% higher in 1953 than in 1929, this increase in real disposable income per capita amounts to only about 45%.

Another important change was in personal consumer expenditures (the market value of goods and services purchased by individuals and nonprofit institutions); expressed as a percentage of the gross national product, they declined from 75.5% in 1929 to 63% in 1953. Nonetheless, the absolute volume of goods and services purchased for personal consumption was vastly increased, with a gain of over two-fifths in real consumption per capita. Gains in consumption per capita were, of course, commonplace prior to 1929. There have been marked shifts in consumption patterns that reflect, in part, differential movements of prices. They also reflect changes in the pattern of spending for commodities; i. e., the social compulsions that dictate at least one automobile per household, the greatly altered pattern of food buying. Just as disposable personal income excludes the amount paid out in personal taxes, personal consumer expenditures exclude all governmental expenditures; for example, personal consumer expenditures for medical care excludes governmental (and business) expenditures for medical care. In the last quarter century there has been little change in total personal medical care expenditures as a percentage of gross national product, of national income, or of personal income. As the following dollar aggregates and (rounded) percentages indicate, the total personal medical care expenditures as a percentage of disposable personal income have increased, however, by 0.5 of a percentage point, and as a percentage of personal consumer expenditures, by 0.7 of a percentage point; since 1930, the increases were only 0.2 and 0.3 points. (A table, showing these

	1929		1953	
	Millions (1)	Personal Medical Care Expenditures as % of Column (1) (2)	Millions (3)	Personal Medical Care Expenditures as % of Column (3) (4)
Gross national product...........	$104,436	2.8	$364,857	2.7
National income	87,814	3.3	305,002	3.3
Personal income	85,763	3.4	286,066	3.5
Disposable personal income......	83,120	3.5	250,099	4.0
Personal consumer expenditures.	78,952	3.7	230,080	4.4

and other relationships for all of the 25 years, appears in the appendix.) The growth of the United States economy and inflation have made the smallest of these five national economic aggregates in dollars for 1953 more than twice the size of the largest aggregate for 1929.

PRIVATE VERSUS PUBLIC ECONOMY

National income and outgo aggregates, in turn, are only parts of the picture of a changing economy. They provide measures of the functioning of the economy, but not changes in what might be loosely termed the structure of the economy from the standpoint of those who own the material things. Students and teachers of economics usually recognize the basic shortcoming of the "income approach" to the study of economics, in this case, medical economics. This major shortcoming can be explained in a simple manner by an analogy. Could the United States Steel Corporation, the American Telephone and Telegraph Company, or any other large national organization run its affairs by depending solely upon an income and outgo summary of its business operations? Obviously the net results of a year or a quarter's operation must be incorporated into the statement of assets and liabilities before the managers and stockholders of the corporation can measure the operating results and plan for the future.

The limited balance sheet presented by the Department of Commerce as a summary of the operations of the American economy is interesting and helpful, but this limited approach is outside the scope of the present discussion. The point must be made and made quickly, however, that the increase in real disposable income per capita of about 45% during this quarter century is an incomplete and misleading measure of the economic progress attained. This particular measure must be examined against a broader background, against the changes in the balance sheet of the American economy during this quarter century. The (gross) federal debt has risen by leaps and bounds, from 18 billion dollars in 1929 to 289 billion in 1953, excluding the large contingent liability under guaranteed mortgages and other programs. (Including state and local government debt, the increase has been from 35 billion to 322 billion dollars.) The full impact of this increasing indebtedness cannot be eliminated from this running account of changes in the American economy by pushing aside the increase in the federal debt with the statement that "we owe it to ourselves," even if the stress is on the second instead of the last word. When a family head considers his wealth or net worth he deducts the amount of the mortgage on his home and on his business properties but he counts among his assets the amount of government bonds that he owns and makes no deduction for the amount of the government bonds that he and his children owe. Consequently the typical householder in 1953 thought he was a lot richer than he really was. This elusive influence of the public debt makes the American people collectively think they are at least 289 billion dollars richer than they really are. In measuring the economic growth of our national economy for this quarter century of time we must, if we wish to be realistic, recognize the rise in the public debt as one of the unfortunate characteristics of the period. It is not necessary to engage in a controversy with Keynesian economists or other inflationists to demonstrate the simple truth that this 45% gain in disposable income per capita was attained during a quarter century when the illusion of great wealth was being created by a tremendous rise in the national debt. In other words, the accomplishment of this 45% gain would have been far greater if the public debt had not expanded.

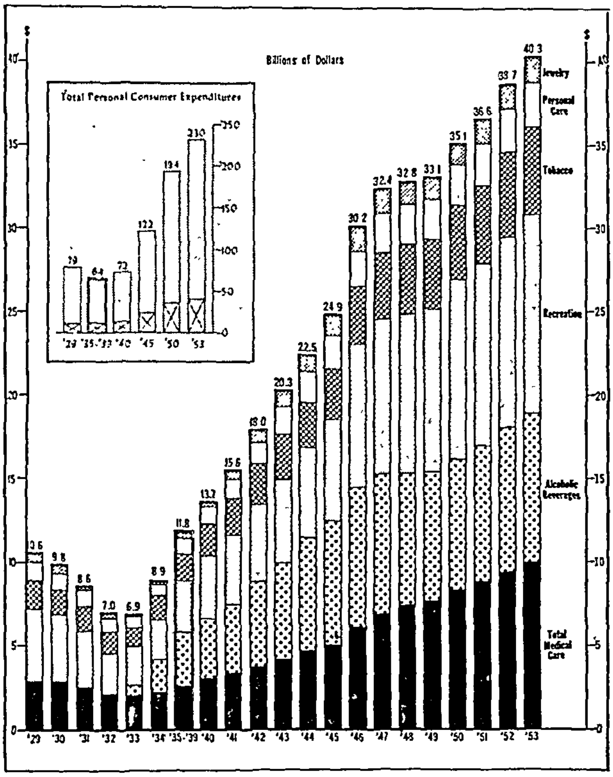

Chart I.—Selected personal consumer expenditures in the United States, 1929-1953. Source: *Survey of Current Business,* 1954 National Income Supplement.

Another liability of a somewhat similar nature that grew up in this quarter century was the deficit in the Old-Age and Survivors Insurance Trust Fund. The amount of the deficit depends upon the assumptions as to such factors as interest rates, mortality rates, and probability of remarriage. This implied obligation of the sovereign power to pay pensions to millions of gainfully employed persons while charging them cut-rate premiums has created a liability for succeeding generations that is almost as real as the liability created by the rising public debt. This additional liability of the government, which is not generally recognized as a liability by heads of families, was at least 200 billion dollars in 1953. It is another "deficit" item that must be considered in measuring the net gains in the nation's economy during the quarter century; at least, in the interpretation of these net gains. It must be added to the public debt; the people collectively think they are almost 500 billion dollars richer than they really are. The complete picture cannot be presented by merely calling attention, as we have, to the increasing role of government, from 8% to 23.5%, in these annual national aggregates. These deficits, while creating an illusion of great wealth, have placed our economy on a treadmill. How to keep this treadmill from slowing down is obviously not one of the questions to be answered in this discussion.

Moreover, difficulties involved in combining private and public items affect the choice of a frame of reference for considering the economic position of medical care during the quarter century. Basically, this is a problem of economic perspective. Consider food, the largest item in personal consumer expenditures. So long as the discussion is restricted to personal consumer expenditures—what we spend as individuals, not what we spend as individuals and taxpayers—the food item seems reasonably clear. But an attempt to include public expenditures for food raises a number of interesting questions. Should the expenditures of the federal government for soil conservation and other forms of subsidy for farmers be added to the food item in estimating the public plus the private expenditures for food? The answer to such a question is very involved. Our purpose is merely to raise the question in order to pinpoint the pitfall of considering the need for medical care as the only human need, because the consideration of one human need can give rise to all manner of special pleading. People literally need everything, and focusing too much attention on one human need at a time is an unscientific procedure as well as one that can lead to many false conclusions.

TABLE 2.—*Selected Personal Consumer Expenditures as Percentages of Total Personal Consumer Expenditures, 1929-1953*

Year (1)	Total Consumer Expenditures (2)	Total Medical Care (3)	Physicians' Services (4)	Hospitals (5)	Drugs and Sundries (6)	Dentists' Services (7)	All Other Medical Care (8)	Alcoholic Beverages (9)	Recreation (10)	Tobacco (11)	Personal Care (12)	Jewelry (13)	Total Columns (4)-(13) (14)
1929	100.0%	3.72%	1.21%	0.51%	0.76%	0.61%	0.62%	....	5.49%	2.15%	1.41%	0.71%	13.48%
1930	100.0	3.99	1.30	0.57	0.80	0.65	0.67	....	5.62	2.04	1.46	0.72	13.85
1931	100.0	4.16	1.34	0.64	0.84	0.67	0.67	....	5.38	2.43	1.60	0.53	14.10
1932	100.0	4.31	1.34	0.78	0.91	0.63	0.65	....	4.95	2.68	1.66	0.51	14.12
1933	100.0	4.27	1.33	0.78	0.92	0.59	0.65	1.43%	4.75	2.66	1.42	0.37	14.91
1934	100.0	4.17	1.31	0.71	0.90	0.57	0.68	3.85	4.70	2.63	1.46	0.38	17.21
1935-1939 (average)	**100.0**	**4.08**	**1.29**	**0.70**	**0.86**	**0.54**	**0.69**	**4.99**	**4.94**	**2.55**	**1.44**	**0.47**	**18.47**
1940	100.0	4.20	1.27	0.73	0.88	0.58	0.73	5.01	5.23	2.62	1.44	0.58	19.08
1941	100.0	4.03	1.17	0.68	0.89	0.56	0.74	5.11	5.18	2.57	1.42	0.69	19.00
1942	100.0	4.16	1.17	0.72	0.94	0.56	0.76	5.66	5.21	2.65	1.51	0.83	20.02
1943	100.0	4.17	1.09	0.75	1.01	0.54	0.79	5.81	4.93	2.66	1.61	0.96	20.14
1944	100.0	4.28	1.20	0.77	0.98	0.52	0.81	6.17	4.94	2.47	1.67	0.96	20.49
1945	100.0	4.14	1.13	0.76	0.94	0.51	0.81	6.15	5.04	2.44	1.63	1.02	20.43
1946	100.0	4.16	1.17	0.79	0.87	0.53	0.80	5.70	5.88	2.37	1.42	1.03	20.57
1947	100.0	4.13	1.22	0.85	0.80	0.48	0.79	5.23	5.67	2.35	1.37	0.89	19.62
1948	100.0	4.16	1.24	0.90	0.76	0.47	0.79	4.46	5.41	2.33	1.29	0.81	18.46
1949	100.0	4.26	1.28	0.96	0.75	0.47	0.80	4.28	5.43	2.35	1.25	0.75	18.33
1950	100.0	4.27	1.26	1.02	0.72	0.45	0.82	4.06	5.55	2.27	1.21	0.71	18.07
1951	100.0	4.21	1.21	1.04	0.73	0.43	0.81	3.94	5.26	2.26	1.19	0.71	17.57
1952	100.0	4.30	1.23	1.10	0.72	0.41	0.84	3.99	5.20	2.33	1.18	0.71	17.72
1953	100.0	4.35	1.22	1.13	0.70	0.41	0.88	3.85	5.17	2.31	1.15	0.68	17.50

Source: Table 1. See also chart II.

If the purpose were merely to divide people into two categories, the well and the sick, it would be necessary to consider the sick people who were taken care of by government. In our study of the age and sex distribution of hospital patients (Bulletin 97) equal attention was given to patients in public and private hospitals. But for the purpose at hand this simple procedure would be highly misleading because we are discussing dollar expenditures; we are discussing national economic aggregates. Our larger frame of reference must be the wealth and income of the American people, as the task at hand is more economic than medical. This vital distinction is often overlooked.[1] The dilemma may be sharpened by considering a few items. Should the expenditures of the United States Department of Defense for the medical care of defense personnel be considered as a public expenditure for medical care? Should the expenditures of the Veterans Administration for the care of veterans with service-connected disabilities be considered a public expenditure for medical care? Doubtless most economists would consider both expenditures better classified if they were treated as defense expenditures for past, present, and future wars. The use of a frame of reference for defining the economic position of medical care that involves an allocation of these public expenditures to medical care items would merely call attention to the fact that we have had several wars recently. Should expenditures of employers for the medical care of injured workmen be considered as medical care expenditures or as among the costs of operating business enterprises? One of the virtues of using personal consumer expenditures as a frame of reference is that it excludes such items as the medical expenditures of the armed forces, of the Veterans Administration, and for injured workmen.

The choice of personal consumer expenditures as a frame of reference in this study should not be interpreted as an attempt to belittle the importance of physicians who serve in the local, state, and federal public health services. The decision to use this concept for medical care expenditures does, however, permit an appraisal of this quarter century unencumbered by a great many factors that would lead into a discussion of the inherent nature of government and its proper function in our society. This decision does not, and cannot, deny that during the quarter century covered the role of government has increased. But unless we could measure its increase—from 8% to 23.5%—in all areas of expenditures (for example, food), we would have no frame of reference for the treatment of these public expenditures for "medical care"; hence, this topic must be put aside as a separate project. Accordingly, we shall confine our attention to the private part of the economy.

Data on personal consumer expenditures will be presented for medical care, for all consumer expenditures, and for certain classifications of consumer expenditures other than medical care, in order to permit the reader to make comparisons among the various categories. The dollar amounts, and in some cases the percentages, represent slight variations from those previously published by this Bureau. This is because the Department of Commerce has constantly endeavored to improve the quality and scope of its estimates and because it has reworked many of the income and product series for the whole 25-year period in order to reflect additional data sources and improvements in estimating techniques. In some cases the revisions of the more detailed components have been rather substantial.

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[1] Davis, M. M.: Medical Care for Tomorrow, New York, Harper & Brothers, 1955.

Personal Consumer Expenditures

Personal consumer expenditures are those dollars spent by individuals for the conduct of their personal lives. (The Department of Commerce now uses the term "personal consumption expenditures" in place of the former term "personal consumer expenditures"; the older term is used herein except in appendix table A.) As defined by the Department of Commerce these expenditures exclude taxes and capital goods. "Personal Consumption Expenditures consists of the market value of purchases of goods and services by individuals and nonprofit institutions and the value of food, clothing, housing, and financial services received by them as income in kind. It includes the rental value of owner-occupied houses but does not include purchases of dwellings, which are classified as capital goods" (page 59). Some comments on the Department of Commerce methods of estimating, and descriptions of the breakdowns and sources used in deriving the aggregate, Total Personal Consumer Expenditures, from which the data for tables 1 to 5 were derived, are presented in the appendix. Personal consumer expenditures amounted to 78,952 million dollars in 1929, they declined to 46,392 million dollars in 1933 (the low point of the depression), and they have increased by varying amounts each year since then. (See column (14) of table 1 and the shaded insert in chart I.) In 1953 total personal consumer expenditures amounted to 230,080 million dollars, 2.9 times the amount for 1929. Food, of course, was the largest item, increasing from 19,535 million dollars in 1929 to 71,844 million in 1953, from 24.7% of total personal consumer expenditures to 31.2% in 1953. The amount spent for medical care rose from 2,937 million to 10,001 million dollars.

Table 3.—*Percentage Distribution of Personal Consumer Expenditures for Medical Care, 1929-1953*

Year (1)	Total Medical Care (2)	Physicians' Services (3)	Hospitals (4)	Drugs and Sundries (5)	Dentists' Services (6)	All Other Medical Care (7)
1929.......	100.0%	32.65%	13.72%	20.57%	16.41%	16.65%
1930.......	100.0	32.59	14.25	20.04	16.33	16.79
1931.......	100.0	32.13	15.50	20.28	16.01	16.08
1932.......	100.0	31.08	18.15	21.11	14.07	15.00
1933.......	100.0	31.11	18.31	21.53	13.92	15.13
1934.......	100.0	31.33	17.05	21.63	13.63	16.36
1935-1939...	**100.0**	**31.60**	**17.24**	**21.02**	**13.28**	**16.86**
1940.......	100.0	30.25	17.46	21.04	13.88	17.36
1941.......	100.0	29.02	16.83	21.98	13.92	18.25
1942.......	100.0	28.06	17.38	22.70	13.52	18.34
1943.......	100.0	26.07	17.95	24.21	12.87	18.91
1944.......	100.0	28.08	17.98	22.78	12.18	18.98
1945.......	100.0	27.17	18.35	22.57	12.30	19.62
1946.......	100.0	28.18	19.05	20.82	12.65	19.30
1947.......	100.0	29.63	20.49	19.26	11.50	19.11
1948.......	100.0	29.83	21.54	18.39	11.28	18.96
1949.......	100.0	30.02	22.46	17.53	11.13	18.87
1950.......	100.0	29.42	23.86	16.99	10.50	19.22
1951.......	100.0	28.79	24.68	17.27	10.11	19.15
1952.......	100.0	28.52	25.56	16.72	9.66	19.54
1953.......	100.0	28.15	26.02	16.15	9.43	20.26

Source: Table 1. See also charts III, IIIA, and IV.

Table 3A.—*Three Items Composing "All Other Medical Care" Expenditures*

	Ophthalmic Products and Orthopedic Appliances		Other Professional Services		Medical Care and Hospitalization Insurance	
Year (1)	Millions of Dollars (2)	Percentage of Total Medical Care (3)	Millions of Dollars (4)	Percentage of Total Medical Care (5)	Millions of Dollars (6)	Percentage of Total Medical Care (7)
1929........	$131	4.46%	$250	8.51%	$108	3.68%
1930........	133	4.69	233	8.22	110	3.88
1931........	117	4.59	201	7.89	92	3.61
1932........	93	4.37	154	7.24	72	3.38
1933........	92	4.64	138	6.96	70	3.53
1934........	124	5.73	145	6.70	85	3.93
1935-1939....	**153**	**5.89**	**163**	**6.27**	**122**	**4.70**
1940........	186	6.16	173	5.73	165	5.47
1941.......	227	6.88	179	5.43	196	5.94
1942........	258	6.91	196	5.25	231	6.18
1943........	307	7.33	206	4.92	279	6.66
1944........	333	7.08	245	5.21	315	6.70
1945........	349	6.92	266	5.28	374	7.42
1946........	396	6.49	338	5.54	444	7.27
1947........	400	5.87	890	5.72	513	7.53
1948........	427	5.78	423	5.73	550	7.45
1949........	448	5.82	448	5.82	557	7.23
1950........	479	5.79	476	5.75	636	7.68
1951........	532	6.06	498	5.67	651	7.41
1952........	561	5.98	532	5.67	740	7.89
1953........	577	5.77	562	5.62	887	8.87

For brief descriptions of these three items see footnote to table 1, column (7).

An examination of table 1 and chart I will clearly indicate that the total dollar amounts spent for all consumer items, for medical care and each of its five components, and for the selected consumer items declined during the early 1930's and rose rapidly during the 1940's. Of the 1953 total, of the 10,001 million dollars for medical care, 2,815 million was for physicians' services, followed by 2,602 million for hospital services, 1,615 million for drugs and sundries, 943 million for dentists' services, and 2,026 million for all other medical care. The amount spent for physicians' services, although somewhat greater than the amount spent for hospital services, involves the treatment of several dozen times as many patients as were admitted to nongovernmental hospitals, for each one of whom the nonprofit hospital paid out an average of about $177. The need for a frame of reference other than total dollars is obvious. In addition to total personal consumer expenditures, this table and this chart present the amount spent for alcoholic beverages, tobacco, personal care, and jewelry. These items were selected because the amounts spent for them were comparable to the amount spent for medical care or one of the five components; furthermore, some of these items, like medical care, are purchased irregularly. There is no intention to imply that any one consumer expenditure item has an exact counterpart in the entire series of several hundred items. The presentation of the data for these selected items should enable many readers to gauge the relative size of medical care expenditures, even though the national aggregate of total personal consumer expenditures seems vast and therefore rather hazy. No moral judgment is

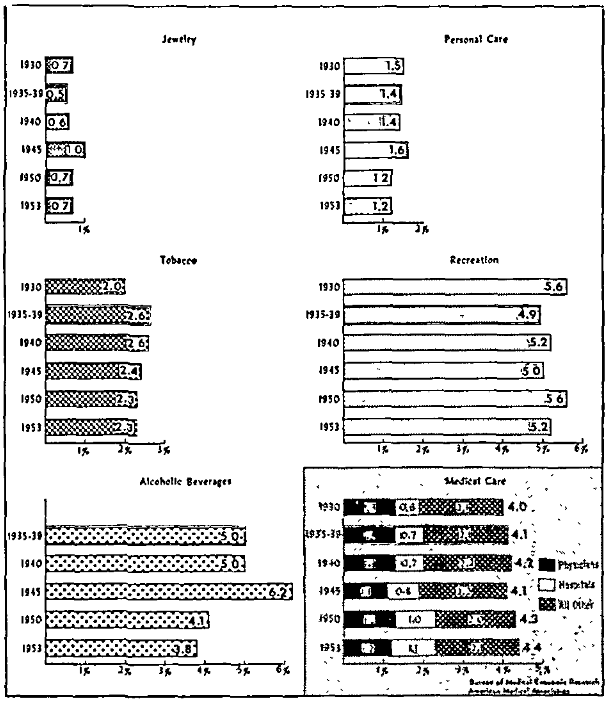

Chart II.—Selected personal consumer expenditures as percentages of total consumer expenditures, 1930-1953. Source: U. S. Department of Commerce.

implied in the choice of these selected items, for they are merely a record of how the people of the United States, enjoying the benefits of a free society, chose to spend their money.

Another group of items was selected—owner-occupied nonfarm dwellings; shoes; furniture; fuel (except gas) and ice; electricity, gas, and water; and user-operated transportation. Data for this second group of six selected items are presented in tables 1A (dollars), 2A (percentage of total personal consumer expenditures), and 4A (percentage of 1935-1939 average); no comments will be made on these data. Although this alternate set of selected items does not meet the test of similarity of amount as well as the first, some readers may prefer the second set; they should help to provide additional comparative perspectives for the medical care items. The dollar expenditures for the medical care items and the first group of selected items are shown as percentages of total consumer expenditures in table 2 and, for selected years, in chart II. Except for 1929 and 1930 the total spent for medical care was slightly above 4.0% of total personal consumer expenditures; for 1930, 3.99% and for 1929, only 3.72%. A careful search was made to try to determine the reasons for the unusually low percentage for 1929, but no satisfactory explanation could be found. We doubt that the lack of reported personal consumer expenditures for alcoholic beverages in 1929 was responsible for this abnormally low percentage for medical care expenditures, or for other percentages. Some students of national aggregates have suggested that the 1929 data should not be criticized too much because it was the first year in the Department of Commerce series. Nor can the low percentage be attributed entirely to the prosperity of 1929, because the percentages in later prosperous years have been above 4.0. Perhaps the most plausible explanation is the relatively small amount spent for hospital services in that boom year.

In general, it can be stated that the percentage spent for tobacco has been slightly less than twice that spent on physicians' services, which, in turn, has been slightly less than the percentage spent for personal care but somewhat greater than the percentage spent for jewelry. The percentage spent on recreation has been consistently greater than the percentage spent for all forms of medical care, which, in turn, was less than the percentage spent on alcoholic beverages from 1935 to 1949, and higher since.

TABLE 1A.—*Other Selected Personal Consumer Expenditures, 1929-1953 (Millions of Dollars)*

Year (1)	Owner-Occupied Nonfarm Dwellings (2)	Shoes (3)	Furniture (4)	Other Fuel and Ice (5)	Household Elec., Gas, and Water (6)	User-Operated Transportation (7)	Total Columns (2)-(7) (8)
1929.......	$5,868	$1,839	$1,918	$1,608	$1,436	$5,960	$18,629
1930	5,552	1,516	1,507	1,542	1,516	4,662	16,295
1931	5,101	1,321	1,293	1,318	1,526	3,747	14,306
1932.......	4,416	1,122	883	1,138	1,477	2,935	11,971
1933.......	3,841	985	853	1,152	1,409	3,035	11,278
1934	3,643	1,174	963	1,263	1,466	3,584	12,093
1935-1939...	**3,928**	**1,302**	**1,434**	**1,364**	**1,619**	**4,808**	**14,555**
1940.......	4,310	1,389	1,809	1,549	1,842	5,872	16,771
1941	4,706	1,588	2,233	1,674	1,908	7,031	19,140
1942.......	5,192	1,946	2,404	1,851	2,024	3,581	16,998
1943.......	5,588	2,095	2,572	1,995	2,084	2,859	17,193
1944	6,060	2,176	2,795	2,043	2,199	3,045	18,318
1945.......	6,492	2,473	3,104	2,189	2,318	3,992	20,568
1946	7,343	3,022	4,287	2,415	2,457	9,004	28,528
1947.......	8,471	3,182	4,687	2,679	2,732	12,316	34,267
1948.......	9,776	3,204	5,025	3,286	3,013	14,313	38,617
1949.......	10,962	3,133	4,842	2,835	3,289	16,939	42,000
1950.......	12,195	3,253	5,442	3,055	3,686	20,182	47,813
1951.......	13,430	3,485	5,594	3,089	4,120	19,586	49,304
1952.......	14,818	3,492	5,635	2,966	4,534	20,054	51,499
1953.......	16,194	3,566	5,755	2,873	4,957	23,461	56,806

Source: United States Department of Commerce.

Brief descriptions of the items (not the type of expenditure), arranged by column numbers, are presented below.

(2) Owner-Occupied Nonfarm Dwellings: Space-rental value, covering heating and plumbing facilities, water heaters, lighting fixtures, kitchen cabinets, linoleum, storm windows and doors, window screens, screen doors, and window blinds or shades. It excludes other furnishings, equipment and related services—furniture, stoves and ranges, refrigerators, repairs of furniture and appliances, fuel, electricity, etc.

(3) Shoes: Includes shoes and other footwear, shoe cleaning and repair.

(4) Furniture: Includes furniture; and semidurable house furnishings, consisting mainly of textile house furnishings (except those specified elsewhere), including piece goods allocated to house furnishings use, and lamp shades, brooms and brushes.

(5) Other Fuel and Ice: All fuel and ice except those included in column (6).

(6) Electricity, Gas, and Water: A division of Household Utilities on basis of classification as service utilities.

(7) User-Operated Transportation: Includes new cars and net purchases of used cars, tires, tubes, accessories, and parts; automobile repair, greasing, washing, parking, storage and rental, gasoline and oil: bridge, tunnel, ferry and road tolls; and automobile insurance premiums less claims paid.

TABLE 2A.—*Other Selected Personal Consumer Expenditures as Percentages of Total Personal Consumer Expenditures, 1929-1953*

Year (1)	Owner-Occupied Nonfarm Dwellings (2)	Shoes (3)	Furniture (4)	Other Fuel and Ice (5)	Elec., Gas, and Water (6)	User-Operated Transportation (7)	Total Columns (2)-(7) (8)
1929........	7.43%	2.33%	2.43%	2.04%	1.82%	7.55%	23.60%
1930........	7.82	2.14	2.12	2.17	2.14	6.57	22.96
1931........	8.32	2.15	2.11	2.15	2.49	6.11	23.33
1932........	8.96	2.28	1.79	2.31	3.00	5.95	24.28
1933........	8.29	2.12	1.84	2.48	3.04	6.54	24.31
1934........	7.02	2.26	1.86	2.43	2.82	6.91	23.30
1935-1939....	**6.17**	**2.04**	**2.25**	**2.14**	**2.54**	**7.55**	**22.69**
1940........	6.00	1.93	2.52	2.16	2.56	8.17	23.33
1941........	5.75	1.94	2.73	2.04	2.33	8.59	23.38
1942........	5.79	2.17	2.68	2.06	2.26	3.99	18.94
1943........	5.56	2.08	2.56	1.98	2.07	2.84	17.10
1944........	5.52	1.98	2.54	1.86	2.00	2.77	16.68
1945........	5.33	2.03	2.55	1.80	1.90	3.28	16.90
1946........	5.01	2.06	2.92	1.65	1.68	6.14	19.46
1947........	5.13	1.93	2.84	1.75	1.66	7.47	20.77
1948........	5.50	1.80	2.83	1.85	1.70	8.06	21.74
1949........	6.07	1.73	2.68	1.57	1.82	9.38	23.26
1950........	6.29	1.68	2.80	1.57	1.90	10.40	24.64
1951........	6.45	1.67	2.68	1.48	1.98	9.40	23.66
1952........	6.78	1.60	2.58	1.36	2.08	9.18	23.58
1953........	7.04	1.55	2.50	1.25	2.15	10.20	24.69

Source: Table 1A.

TABLE 4A.—*Other Selected Personal Consumer Expenditures, 1929-1953, as Percentages of the 1935-1939 Average*

Year (1)	Owner-Occupied Nonfarm Dwellings (2)	Shoes (3)	Furniture (4)	Other Fuel and Ice (5)	Elec., Gas, and Water (6)	User-Operated Transportation (7)	Total Columns (2)-(7) (8)
1929.........	149.39	141.24	133.75	117.89	88.70	123.96	128.88
1930.........	141.34	116.44	105.09	113.05	93.64	96.96	112.73
1931.........	129.86	101.46	90.17	96.63	94.26	77.93	98.97
1932.........	112.42	86.18	61.58	83.43	91.23	61.04	82.82
1933.........	97.86	75.65	59.48	84.46	87.03	63.12	78.02
1934.........	92.74	90.17	67.15	92.60	90.55	74.54	83.66
1935-1939.....	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1940.........	109.72	106.68	126.15	113.56	113.77	122.13	116.02
1941.........	119.81	121.97	155.72	122.73	117.85	146.24	132.41
1942.........	132.18	149.46	167.64	135.70	125.02	74.48	117.59
1943.........	142.26	160.91	179.36	146.26	128.72	59.46	118.94
1944.........	154.28	167.13	194.91	149.78	135.82	63.33	126.72
1945.........	165.27	189.94	216.46	160.48	143.17	83.03	142.29
1946.........	186.94	232.10	298.95	177.05	151.76	187.27	197.36
1947.........	215.66	244.39	326.85	211.07	168.75	256.16	237.06
1948.........	248.88	246.08	350.42	240.91	186.10	297.69	267.15
1949.........	279.07	240.63	337.66	207.84	203.15	352.31	290.56
1950.........	310.46	249.85	379.50	223.97	227.67	419.76	330.77
1951.........	341.90	267.67	390.10	226.47	254.48	407.36	341.09
1952.........	377.24	268.20	392.96	217.45	280.05	417.10	356.27
1953.........	412.27	273.89	401.32	210.63	306.18	487.96	392.99

Source: Table 1A.

BOOM IN OBSTETRICS AND PEDIATRICS

Perhaps the largest factor in the increase in dollars (from 5,042 million to 10,001 million) and in the percentage (from 4.14 to 4.35) spent for medical care since the end of World War II in 1945 is the increase in the number of births. They rose from 2,700,000 in 1945 to 3,900,000 in 1953, and the birth rate rose from 19.5 to 24.7. The proportion of all births in (registered) hospitals also increased, from 72% to 85%. Ideally, medical care expenditures should be divided into those for disease, for accidents, and for childbearing; such a division would show surprisingly large amounts for accidents and childbearing. It is the increase in the latter—an increase of 1,200,000 "bundles of joy"—that has been primarily responsible for increasing the percentage spent for medical care from 4.14 in 1945 to 4.35 in 1953. In pointing out the role of childbearing in this eight-year rise in the percentage spent for medical care, our purpose is not to quarrel with the classifications of the Department of Commerce but to warn against the misuse of the over-all data on medical care expenditures. The medical costs of childbearing are properly considered in the category of medical costs, but interpreting this increase in the percentage of consumer expenditures made for medical care since the end of World War II as a proof of high medical care prices or as an indication that our nation is becoming less healthy would be entirely unfounded.

It would be difficult to choose a completely satisfactory set of assumptions for the purpose of measuring the precise amount of this postwar increase attributable to the increase in the number of births or to the birth rate after allowing for some gain in population for reasons other than births. It would also be necessary to employ assumptions suitable to the early part of this quarter century when the birth rate and the number of births were decreasing. We have made certain assumptions that allow for a smaller increase in births and, consequently, a smaller increase in obstetric fees, in preparing some exploratory computations. They indicate that the percentage spent for medical care in 1953 would have been reduced from 4.35 to 4.2, possibly to 4.1. The computations are too preliminary to warrant presentation herein. Certainly, the increase in births has probably been the greatest single factor in the moderate but steady rise in the percentage spent for medical care during the last eight or ten years of this quarter century. Moreover, physicians have contributed to the high birth rate; reduction of the maternal mortality rate to a very low level has practically eliminated the mortal fear of childbearing.

The enormous baby boom since World War II has had a secondary effect on personal consumer expenditures for medical care. A number of studies have been made on the age and sex incidence of the demand for the services of physicians and hospitals. A compilation of these studies has been made by Collins and co-workers.[2] On the whole, these studies show that the frequency of use of health services was higher for the preschool age group than for other age groups. Hence the great increase in the number of young children since World War II has probably produced a disproportionate increase in the per capita demand for the services of physicians and hospitals. During their adult years the survivors of this large group of children will greatly expand the potential labor force and should tend to increase all the national economic aggregates. But the time elapsed since the baby boom started after World War II has been insufficient for them to increase national income. So the secondary effect of the great increase in births—in the field of pediatrics rather than obstetrics—may actually be greater than the primary effect of the costs of childbearing. Furthermore, although pregnancy is not a disease, accidents, disease, and the prevention of disease account for the medical and hospital services for small children. Apparently, the number of annual births will exceed 4 million for several years to come, and the number of preschool children shows no signs of diminishing.

DISEASE, ACCIDENTS, AND BABIES

Unfortunately for our present purposes, the methods used by the Department of Commerce in preparing the annual estimates of personal consumer expenditures for the services of physicians and hospitals do not permit a separation of either the costs of childbearing or the costs of frequent medical care for young children. Without such breakdowns it is not possible to utilize a standardized age distribution in estimating the separate amounts of medical care costs resulting from these two factors. Pending the development of the necessary breakdowns, we conclude this portion of the analysis with the admonition that a very considerable portion of the increase in the dollars spent by consumers for medical care, especially for the services of physicians and hospitals, during the post-World War II years should be attributed to childbearing and the great increase in both the number and proportion of young children in our population. This admonition should be interpreted as a recognition that medical care expenditures have risen, both absolutely and relatively; but the rise does not indicate a deterioration in the health of the American people or, as will be shown in more detail later, rapidly rising prices in all fields and aspects of medical care.

The full implication of personal consumer expenditures for medical care could be presented with clarity and significance if these expenditures could be divided into three parts: those for diseases, those for accidents, and those for childbearing. Furthermore, adjustments for changes in the age distribution of the population in any of these three types of expenditures would increase the significance of the data. Increases and decreases in each of these three items would clarify the role of medical care expenditures in the whole gamut of personal consumer expenditures. At the present time this threefold division cannot be made.

PEAKS AND TRENDS

Prior to 1945, in this quarter century two peaks in personal consumer expenditures for medical care should be noted. The highpoint of 4.28% in 1944 undoubtedly reflects the rationing of many commodities and services, the scarcity of certain drugs, and the induction of about two-fifths of the physicians into military service—an abnormal year from any standpoint. The first peak of 4.31% in 1932 probably reflects the stability of some medical expenditures in the depth of a great depression. The percentage spent for physicians' services (column (4), table 2) has fluctuated from a low of 1.09 in 1943 to 1.34 in 1931 and 1932. On the other hand, the percentage spent for hospital services has shown a rather steady and sharp upward trend to a highpoint of 1.13 in 1953. Expenditures for the services of dentists have varied between 0.41% in 1952 and 1953 and 0.67% in 1931, with a noticeable downward trend during the quarter century. The percentage spent for drugs and sundries (outside of hospitals) has followed an erratic course, rising to a World War II peak and then declining; for all other medical care, the percentage rose rather steadily from 0.62 in 1929 to 0.88 in 1953.

Since the American people were free to spend more on medical care and less on some other item, for example, recreation, their reasons for not doing so are important. Even a cursory examination of the types of expenditures included under medical care by the Department of Commerce will indicate that some medical care expenditures are necessities and some are luxuries within the ordinary meaning of those terms. A private hospital room with all the extras is, for some patients, a common example of the latter. A reasonably satisfactory explanation of why the people did not choose to spend more for medical care and less for recreation would carry us too far into the realm of marginal utility and value. People tend to spend their money so that the marginal utility of each dollar spent is equal to the marginal utility enjoyed by any other dollar spent. At the outer fringe of medical care there are a great many types of expenditures that many would consider to be almost frivolous; in fact, many people would prefer a pleasure trip to such small additions to their well-being as can be made by the purchase of some of these relatively unimportant medical care items. In the end it is largely a matter of degree. The freedom of the people to distribute their personal consumer expenditures as they see fit tends to keep these marginal utilities equated.

THE MEDICAL CARE DOLLAR

The changes in the percentages spent for each of the five medical care items can be presented more clearly by changing the frame of reference from total personal consumer expenditures to those for medical care only. The total amount spent for medical care has been set equal to 100% in tables 3 and 3A, and in charts III, IIIA, and IV. We have called this smaller frame of reference the medical care dollar. The portion of the medical care dollar spent for physicians' services has declined from 32.65 cents in 1929 to 28.15 cents in 1953; this decline is evident in the top line on chart III and in the black portion of the medical care dollar in chart IV—from 33 cents in 1929 to 28 cents in 1953. It is presented in more concise statistical form in chart IIIA as a trend line with a definite downward slope during this quarter century; the straight line trends were removed from chart III for the sake of clarity. There was also a definite downward trend in the portion of the medical care dollar spent for the services of dentists, from 16.41 cents in 1929 to 9.43 cents in 1953. This downward trend is roughly indicated on chart III and definitely by the downward trend of the straight line on chart IIIA and the smaller wedge of the pie in chart IV—from 16 cents to 10 cents. The pie chart also gives a quick visual presentation of the decline in the portions of the medical care dollar spent for the services of physicians and dentists combined, from 49 cents in 1929 to 38 cents in 1953. This decline in the percentage of the medical care dollar that American consumers spent for the professional services of physicians and dentists is one of the outstanding changes in the economics of medical care in this quarter century. (The average relationship between the percentages of the medical care dollar for each of the five items may be described by fitting straight lines [$y=a+bx$] for the 25-year period to the values plotted on chart III by the method of least squares. The results are five derived "trend lines" shown on chart IIIA. The formulas used in plotting these trend lines were: physicians, $y=32.44-0.19x$; hospitals, $y=13.76+0.40x$; for others, $y=15.43+0.19x$; drugs, $y=22.35-0.15x$; and dentists, $p=16.03-0.24$.)

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[2] Collins, S. D., and others: Sickness Experience in Selected Areas of the United States, Public Health Monograph no. 25, Public Health Service Publication no. 390, U. S. Department of Health, Education, and Welfare, 1955.

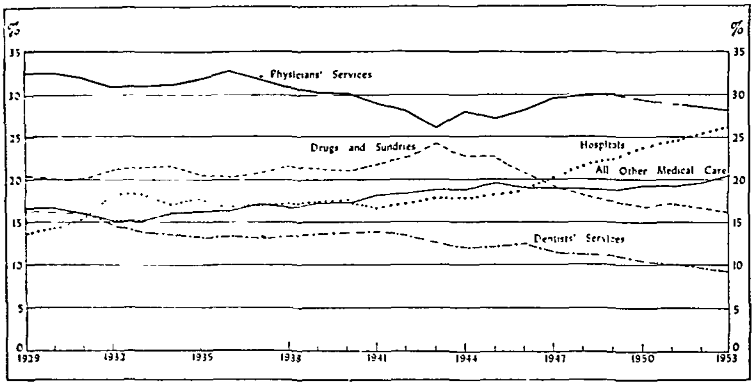


Chart III.—Percentage distribution of expenditures for medical care, 1929-1953. Source: U. S. Department of Commerce.

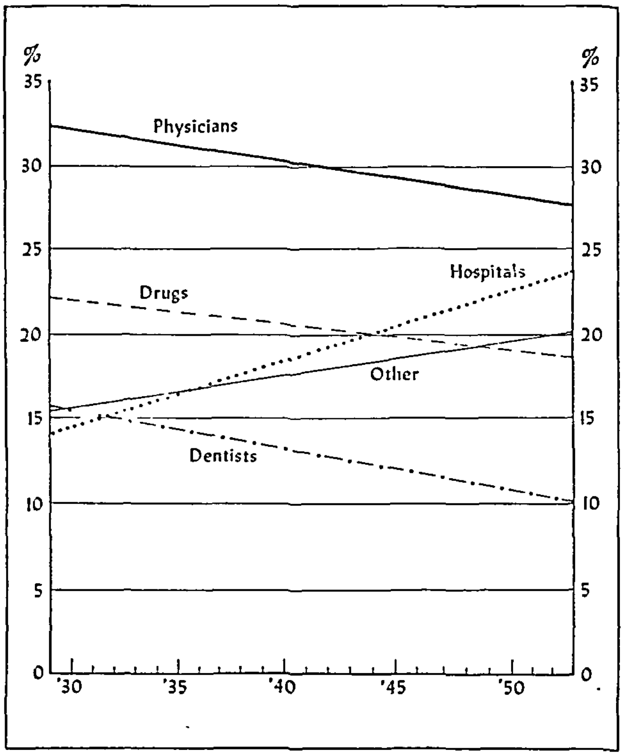


Chart IIIA.—Trends in portions of the medical care dollar. Source: U. S. Department of Commerce.

The portion of the medical care dollar spent for hospital services rose sharply from 13.72% in 1929 to 26.02% in 1953. This rise in the hospital portion of the medical care dollar can be seen by following the line for hospitals in chart III, but it is much clearer in the sharp upward slope of the straight line in chart IIIA and in the widening wedge of the pie of chart IV—from 14 to 17 to 26 cents. Although we have elsewhere raised some questions regarding the Department of Commerce estimates of total and the breakdowns of personal consumer expenditures for medical care, this obvious upward trend in expenditures for hospital services is not surprising. It was during this quarter century that the American people began to patronize their hospitals frequently, beginning of course with birth itself and continuing throughout life. The number of patient days in nongovernment hospitals rose from 77 million in 1929 to 123 million in 1953 (compiled from the annual hospital numbers of THE JOURNAL of the American Medical Association). Unquestionably the rapid expansion of hospital insurance has played an important role, but our point here is merely that the phenomenal health progress attained during this quarter century would probably have been impossible if the portion of the medical care dollar going to hospitals had not increased sharply. Change is inherent in a dynamic economy, and the increase in the economic importance of hospitals is another of the outstanding changes in the economics of medical care during the quarter century.

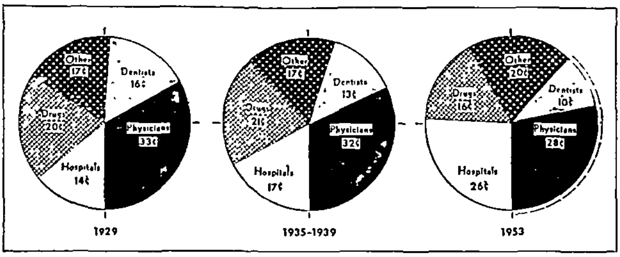


Chart IV.—The medical care dollar. Source: *Survey of Current Business*, 1954 National Income Supplement.

Chart IIIA seems to forecast a larger share of the medical care dollar for hospital services than for physicians' services. A simple extrapolation of these two trend lines indicates that they will intersect by 1960. (Preliminary data for 1954 suggest it may happen before 1960.) We do not make that as a positive forecast because trend lines are, of course, statistical measures of the past and not too reliable as a forecasting device. Nevertheless, there is a strong possibility that the American consumer will be spending more for the services of hospitals than for the services of physicians sometime in the 1960's. The portion spent for drugs and sundries (outside of hospitals) was 20.57% in 1929, 24.21% in 1943, and only 16.15% in 1953. This peak in 1943, shown in chart III, was probably a result of the wartime scarcity of some drugs; the development of antibiotics, which were originally very expensive; and possibly the tendency of hard-pressed civilian physicians to prescribe more drugs than usual during the war days when two-fifths of the physicians were in the armed services. Moreover, this category includes not only consumer expenditures for prescriptions but also the amounts spent by consumers for patent medicines and for such things as clinical thermometers, rubber sundries, arch supports, and some articles of personal hygiene; the amount spent for prescriptions alone is not available. We hesitate to make an extrapolation of the trend for this item because of the extremely rapid progress in the development of new drugs.

We have incorporated into all other medical care, which rose rather steadily from 16.65% in 1929 to 20.26% in 1953, the Department of Commerce's separate estimates for the three remaining items—ophthalmic products and orthopedic appliances, other professional services, and medical care and hospitalization insurance (premiums less claims). These are shown separately in table 3A. The portion spent for ophthalmic products and orthopedic appliances rose from 4.46% in 1929 to 7.33% in 1943 and decreased to 5.77% in 1953. The portion spent for other professional services—which the Department of Commerce previously divided into six categories: osteopathic physicians, chiropractors, chiropodists, pediatrists, private-duty trained nurses, practical nurses and midwives, and miscellaneous curative and healing professions—declined rather steadily from 8.51% to 5.62%; the decision of the Department of Commerce to give only one amount for these six items precludes any comment on any one of them.

medical care—489 million dollars in 1929 to 2,026 million dollars in 1953 [column (7), table 1]. The increase in this overhead item also accounted for one-ninth of the 7,064 million dollar increase in total personal consumer expenditures for medical care between 1929 and 1953; this increase was also 42% of the increase between 1929 and 1953 in the amount spent for physicians' services, 34% of the increase for hospitals, 77% of the increase for drugs and sundries, and 169% of the increase for dentists' services. It is not, however, a medical care item per se. The rise has been quite steady throughout the quarter century. (Preliminary data for 1954 indicate another jump in this overhead item.)

The inclusion of this item in medical care expenditures—with which we have no quarrel—means that the overhead cost of operating voluntary health insurance plans is allocated by the Department of Commerce to medical care expenditures as would be an obstetrician's fee, a week's stay in a nongovernment hospital, or the price of a bottle of penicillin purchased outside of the hospital. Obviously the function of insurance is to spread risks, not losses. If all people were to be covered by all the necessary forms of health insurance, the overhead cost of operating these insurance companies and plans would be an added cost of medical care over and above the indemnities paid. This cardinal point should be stressed over and over again. Sometimes it seems that, when a labor union is trying to induce an employer to pay an extra few cents an hour for health insurance, the purchase of aspirin tablets is made to appear as a dire hardship for the worker. Payment of these small claims increases the overhead cost of operating an insurance plan; it increases the total cost of medical care to the American people. Provisions for the payment of these "five and dime claims" under insurance arrangements add to the total cost of medical care to the American people and, thereby, raise serious doubts about the wisdom of such provisions. The fact that such employer costs are passed on to the ultimate consumer decreases the interest of some people in such matters but cannot decrease the extra dead weight added to the expenditures of the American people for insurance overhead for medical care. Most of the increase from 108 million to 887 million dollars probably resulted from the rapid expansion of voluntary health insurance in the United States rather than from the cost of handling so many small claims. Coverage of almost 100 mi [illegible] some form of hospitalization insurance in 1953 [illegible] a considerable overhead charge. The una [illegible] data on the cost of handling these small cl [illegible]

TABLE 4.—*Selected Personal Consumer Expenditures as Percentages of the 1935-1939 Average*

Year (1)	Total Medical Care (2)	Physicians' Services (3)	Hospitals (4)	Drugs and Sundries (5)	Dentists' Services (6)	All Other Medical Care (7)	Alcoholic Beverages (8)	Recreation (9)	Tobacco (10)	Personal Care (11)	Jewelry (12)	Total Columns (3)-(12) (13)	Total Consumer Expenditures (14)
1929	113	117	90	111	140	112	...	138	105	122	185	90	124
1930	109	115	90	101	134	109	...	127	89	113	170	84	111
1931	98	100	88	95	118	94	...	105	92	107	109	74	96
1932	82	81	86	82	90	73	...	78	82	89	83	59	77
1933	76	75	81	78	80	68	21	70	76	72	57	59	73
1934	83	83	82	86	86	81	63	78	84	83	66	76	81
1935-1939	100	100	100	100	100	100	100	100	100	100	100	100	100
1940	116	111	118	116	121	120	113	120	116	113	137	117	113
1941	127	117	124	133	133	137	132	135	130	127	186	132	129
1942	144	128	145	155	146	156	160	149	147	148	246	153	141
1943	161	133	168	186	156	181	184	158	165	176	321	172	158
1944	181	161	189	196	166	204	213	172	168	200	348	191	172
1945	194	167	206	208	180	226	236	195	183	216	412	211	191
1946	235	210	260	233	224	269	263	274	215	228	499	256	230
1947	262	246	312	240	227	297	271	297	239	246	484	275	259
1948	284	268	355	249	241	320	250	305	256	250	475	279	279
1949	296	282	386	247	248	332	243	312	262	247	450	282	284
1950	319	297	441	258	252	363	248	342	271	257	459	298	305
1951	338	308	484	278	257	384	258	349	290	272	489	311	327
1952	361	326	535	287	263	418	275	361	314	281	517	329	343
1953	385	343	581	296	273	463	279	378	328	288	517	342	361

Source: Table 1

INSURANCE OVERHEAD

Special attention must be given to the last two columns in table 3A, medical care and hospitalization insurance. In former years this item was divided into: (1) net payments to group hospitalization and health associations, (2) student fees for medical care, (3) net payments of accident and health insurance, and (4) net payments of mutual accident and sickness benefit associations. The former terms and the present single term, medical care and hospitalization insurance, are somewhat misleading to many students of insurance. The amounts are really premiums less claims except for student fees for medical care and medical expenses of group health associations; the term overhead or operating expense of the insurance carrier would be more descriptive, even though some of these dollars (on a cash basis) went into reserves. The actual benefits to policyholders are, and should be, excluded, for they enter the picture of medical care expenditures through other doors. The amount of this insurance overhead item increased from 108 million dollars in 1929 to 887 million in 1953, or from 3.68% of medical care expenditures to 8.87%; in 1945 the amount was only 374 million dollars. Thus, the increase in medical care and hospitalization insurance overhead accounted for 779 million dollars of the 1,537 million dollar increase in the item all other failure of the voluntary insurance plans and companies to make such data available. Whatever the division may be, our point here is merely that the overhead cost of operating voluntary health insurance plans is a part, and a rapidly increasing part, of the amount classified as personal consumer expenditures for medical care. But this is not an argument for governmental compulsion, in the hope that, despite the greater overhead, it could be spread more thinly over all taxpayers. This insurance overhead item of 887 million dollars could, at least theoretically, have been distributed among the four major categories of medical care. The major portion would, of course, have been assigned to hospitals, because of the extremely large volume of hospital insurance, and little or none to dentists' services. It is to be hoped that the Department of Commerce will soon be able to develop the necessary breakdowns of this insurance overhead item in order that the allocations can be shown regularly. The importance of this suggestion for future years rests on the assumption that this item will continue to show the most rapid growth of the four major and three minor items; in 1953 this amount for insurance overhead was 94% of the amount spent for dentists' services, 55% of the amount spent for drugs and sundries, 34% of the amount spent for hospital service, and 32% of the amount spent for physicians' services.

The changes in the amounts spent by consumers for the five medical care items and the five selected consumer items shown in tables 1 and 2 are also revealed in the index numbers presented in table 4. The base period used is 1935-1939, and the *average amount for these five years for each item is set equal* to 100. This method of presentation avoids the use of dollars; the magnitude of the index for any year is relative to the five-year base period average. The index number for the year for total personal consumer expenditures [column (14)] provides a standard of comparison for the index number for any one of the items; the decline from 124 in 1929 to 73 in 1933, past the 200 mark in 1946 (230) and the 300 mark in 1950 (305). For 1953 the index number was 361; that is, total personal consumer *expenditures in 1953 were 261% above the 1935-1939 level.* On the other hand, the 1953 index for total medical care was 385, for physicians' services 343, for hospitals 581, for drugs and sundries 296, for dentists' services 273, and for all other medical care 463. For the first set of five selected items for 1953 the indexes were: 279 for alcoholic beverages, 378 for recreation, 328 for tobacco, 288 for personal care, and 517 for jewelry. An interesting coincidence is that the index number for these 10 items combined—5 medical care and 5 selected—was 342 for 1953 and for physicians' services 343.

The Department of Commerce presents 67 numbered items and 23 subitems in its table 30, Personal Consumption Expenditures, by Type of Product, 1929-1953 (pp. 206-209). These are grouped into 12 classes shown in our table 5. (As noted, table 5 is omitted here but will appear in the reprints.) The items included in each class are defined in extensive footnotes. They are presented in table 5 in millions of dollars (part A), as index numbers based on 1935-1939 (part B), and as percentages of *total personal consumer expenditures (part C). The largest class* of expenditures is food and tobacco. [The amounts for tobacco are shown separately in columns (10) and (11) of our tables 1 and 2.] Although dwarfed by food and tobacco, the other large items were: household operation; housing; clothing, accessories, and jewelry; and transportation. The data in column (7) of table 5, medical care and death expenses, exceed the amounts shown in other tables for medical care alone by the amounts for death expenses, which rose from 607 million dollars in 1929 to 1,168 million in 1953. Our exclusion of death expenses from this broad category should not imply any criticism of the Department of Commerce in combining death expenses and medical care as one of the 12 broad groups of personal consumer expenditures; death expenses seem to fit better there than in any of the other 11 major categories. Table 5 provides, therefore, a broad perspective of how American consumers chose to spend their money in each of these 25 years. Economically, they were free to spend their money in a different fashion. This table, then, is the record of the collective choices of the American people during the quarter century.

(Concluded next week)

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Army and Navy: Induction Under "Doctor-Draft" Law.—The petitioner, a licensed physician, filed suit for a writ of habeas corpus to obtain a discharge from the U. S. Army. After a denial of the writ by the trial court and the court of appeals, the petitioner was granted certiorari to the United States Supreme Court.

The petitioner was over the age limit set for general induction, but he was subject to conscription under a special provision of the draft law providing for induction of men of certain medical and allied specialist categories. He had received his professional training during World War II at government expense, but he had spent less than 90 days in active service. He was, therefore, one of the first to be called for service under the medical specialist provision of the draft law. After his induction the petitioner was refused an officer's commission, because he refused to answer certain loyalty questions (referring to membership in the Communist Party or Communist-front organizations), claiming his federal constitutional privilege. He was, however, assigned duties as a medical laboratory technician. Three issues were presented: 1. Must the Army grant the petitioner a commission? 2. Must the Army assign only those duties to the petitioner that are consistent with his position as a medical specialist? 3. May the petitioner obtain a military discharge if the Army refuses to assign him to such duties?

The Supreme Court held that it was the function of the President of the United States to commission officers in the Army, but that under the law the President was not required to grant the petitioner a commission, even though doctors inducted under this special provision are customarily given commissions. The Court's holding was based on a 1950 act, wherein Congress provided that the Army Medical Corps shall consist of officers "and such other members of the Army as may be assigned thereto by the Secretary of the Army. . . ." The Court also held that the petitioner, having been specially inducted as a doctor, was entitled to be assigned duties falling within "medical and allied specialist categories." To hold otherwise, said the Court, would be to permit an unlawful discrimination. Finally the Court found that the petitioner had been assigned medical duties. The petitioner claimed that even though he was assigned such duties, he was not permitted to do all the things that a man of his experience was entitled to do. The Court said that the courts should not entertain suits to determine whether or not a particular serviceman was being assigned tasks suited to his particular capabilities, since such decisions were solely within the discretion of the military officials.

Accordingly, the Supreme Court affirmed the judgment for the Army and denied the petitioner a discharge. *Orloff v. Willoughby, 73 S. Ct. 534 (U. S., 1953).*

Drunkenness: Privilege Against Self-Incrimination; Consent.—The defendant was tried and convicted of the offense of driving while intoxicated. From such conviction the defendant appealed to the court of criminal appeals of Texas.

After an automobile accident in which the defendant was involved, the defendant was taken to a hospital for treatment. While there a laboratory technician told the defendant that he intended to take a specimen of the defendant's blood. The defendant offered his arm in the proper position, and the sample was taken without any objection by the defendant. At the trial a toxicologist testified that the blood sample contained 2.2 mg. of alcohol per cubic centimeter of blood and that such percentage (0.22%) was indicative of intoxication. The defendant objected to this testimony on the ground that it violated his constitutional prohibition against self-incrimination.

The court held that where a blood specimen is taken with the consent of the defendant no constitutional prohibition against self-incrimination is violated by the subsequent use of the specimen in evidence against the accused. Accordingly, the conviction of the defendant was affirmed. *Marshall v. State, 262 S. W. (2d) 491 (Texas, 1953).*

MEDICAL NEWS

CALIFORNIA

County Society Honors Dr. Murray.—The Napa County Medical Society recently paid tribute to Dr. Dwight H. Murray, President-Elect of the American Medical Association, at a testimonial dinner attended by more than 100 physicians from Napa County and elsewhere. The August issue of the society's bulletin carries a picture of Dr. Murray on the cover, an editorial tribute, and two pages of photographs taken at the dinner.

Council on Sports Medicine.—An organizational meeting of a group tentatively named the Western Council of Sports Medicine was scheduled for Aug. 22 in the Los Angeles County Medical Association Auditorium, with Dr. Wilmer B. Buckland of Van Nuys and Dr. William D. Lindgren, medical director of the Sister Kenny Polio Hospital, El Monte, as co-chairmen. The new organization of physicians and others will undertake research and analysis of sports programs and of the treatment of athletic injuries, training methods, and standards of physical fitness, and a study of physical education programs in general. Membership will be open to members of the Los Angeles County Medical Association and to certain qualified laymen whose profession or hobby brings them into close association with athletics.

CONNECTICUT

Society News.—Newly elected officers of the Connecticut Public Health Association include Dr. William Hart Upson, Suffield, president; Dr. Edward M. Cohart, New Haven, president-elect; Leonard F. Menczer, D.D.S., Hartford, vice-president; Mrs. Claire Heinhardt, West Hartford, secretary; and Mrs. Eloise K. Erkler, treasurer (reelected).

Annual Clinical Congress.—The 30th Clinical Congress, sponsored by the Connecticut State Medical Society and Yale University School of Medicine, will convene at the Yale-New Haven Medical Center, New Haven, Sept. 14-15. The following program will be presented Wednesday at 10 a. m. in the Brady Auditorium:

Clinical Aspects of Disorders of Coagulation, Mario Stefanini, Brighton, Mass.
Anticoagulants, William T. Foley, New York, and Henry I. Russek, Staten Island, N. Y.
Hypophysectomy for Breast Cancer, Bronson S. Ray, New York.
Chemotherapy of Neoplastic Disease: Its Relationship to Surgery, Joseph H. Burchenal, New York.
Changing Concepts of Cancer Surgery, J. Englebert Dunphy, Boston.

*Simultaneously, in the Fitkin Amphitheater, Dr. David Hur*witz, Cambridge, Mass., will discuss "Use of Various Types of Insulin," after which Dr. Max Miller, Cleveland, will consider "Use of Fructose in Treatment of Diabetic Acidosis." Luncheon, 12:30 p. m., will be preceded by a clinicopathological conference conducted by Dr. Benjamin Castleman, Boston, and followed by panels on low back pain and on headache. The Thursday session in the Brady Auditorium will be devoted to panels on infectious hepatitis, immunization against poliomyelitis, drug therapy in hypertension, and new tranquilizing drugs. The following program will be presented in the Fitkin Amphitheater:

Intractable Heart Failure: Its Management, E. Hugh Luckey, New York.
Management of Patients with Arterial Disease, Fiorindo A. Simeone, Cleveland.
Clinicopathological Conference, H. Edward MacMahon, Boston.
Indications for Emergency Surgery in Biliary Tract Disease, Henry Doubilet, New York.

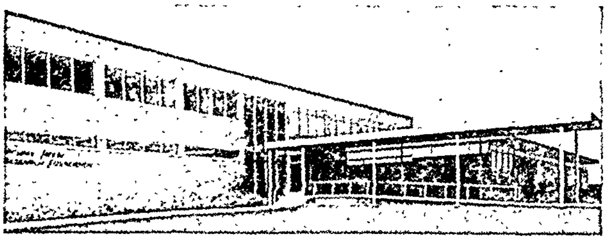
Registration, admitting one to all sessions, will be $3. Medical students, interns, and residents will be guests of the congress, if properly certified. Address inquiries to the Connecticut State Medical Society, 160 St. Ronan St., New Haven 11.

ILLINOIS

New State Birth Record.—According to the state department of public health more babies were born in Illinois in 1954 than in any previous year of record. Last year's estimated total of 217,000 live births exceeds by about 10,000 the previous high established in 1953. The increase in births in 1954 and the low death rate combined to give the state a natural increase in population of close to 125,000. Deaths among babies under one year of age totaled an estimated 5,400 in 1954, or 25 per 1,000 live births. These figures compare with a total of 5,326 infant deaths in 1953 and a rate of 25.8. Neonatal mortality, however, among babies under 28 days of age continued at about the same rate as in 1953—about 18 deaths per 1,000 live births. Despite the record number of births, maternal mortality continued to decline in Illinois in 1954.

Chicago

Michael Reese Research Foundation.—An open house will mark the official opening of the new $1,250,000 building of the Michael Reese Foundation Sept. 11, 1-4 p. m. The building, which will be dedicated in honor of the late Dr. Sidney O. Levinson, first executive director of the foundation, is a two-story, reinforced concrete structure, occupying the southern half of the block between Ellis and Lake Park avenues, north of 31st Street. The northern half will be used as a park adjacent to the Friend Convalescent Home, to be constructed by Michael Reese Hospital in 1956. The first floor of the building contains facilities for blood donors, a blood bank, and laboratories for preparation of plasma and serums required for community service. The second floor is devoted to research laboratories and offices. Dr. Albert M. Wolf is executive director of the foundation.



Michael Reese Research Foundation

IOWA

General Practice Meeting.—The annual meeting of the Iowa Academy of General Practice will be held at the Hotel Savery, Des Moines, Sept. 15-16. Presentations by out-of-state speakers will include "Recognition of Neurotic and Psychotic Patients in Medical Practice" and "The Suicide" by Dr. Louis G. Moench, Salt Lake City, and "Emotional Tragedies in Infancy and Childhood" and "Teen-Age Problems" by Dr. John G. Young, Dallas, Texas.

KANSAS

Fluorination of Water Supply.—Coldwater, the 24th Kansas city to fluorinate its public water supply, is the first city in the state to cooperate with a private utility company to give the citizens fluorination. The city purchased equipment and supplies, and the Western Light and Telephone Company, which owns the water system, handles operation, maintenance, and testing.

Society News.—The Kansas Radiological Society recently elected Dr. Abraham M. Cherner, Hays, president; Dr. Kenneth Allen, Kansas City, vice-president; and Dr. George S. Ripley Jr., Salina, secretary-treasurer.——At a meeting of the Kansas State Pediatric Society in Emporia, Sept. 10, Dr. James M. Baty, Boston, will present "Psychosomatic Problems," "Emergencies

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

in the Newborn," and "Colic." Dr. Herbert A. Wenner of the University of Kansas Medical Center, Kansas City, will discuss "Current Research in Poliomyelitis." Physicians who are members of the Kansas Medical Society are eligible to attend.

KENTUCKY

Needs of Handicapped.—The governor has appropriated $10,000 from his emergency fund for a survey by the state's Legislative Research Commission to determine the needs of the handicapped in Kentucky. In addition to Dr. J. Gant Gaither, Hopkinsville, president-elect of the Kentucky State Medical Association, other physicians on the committee are J. Murray Kinsman and Asa Barnes, Louisville, and Marshal M. Jones and Franklin B. Moosnick, Lexington.

Auxiliary Mental Health Activities.—The mental health committee of the woman's auxiliary to the Jefferson County Medical Society, set up in January, 1954, to investigate local needs and possible avenues of volunteer service in an effort to correct and check the increase of mental illness, reports a successful project in improving the morale and pleasant living of 180 attendants working with patients at the Kentucky General State Hospital at Lakeland. Through the efforts of the auxiliary, numerous social events were planned, which resulted in "boosting the morale of attendants . . . and hence contributing toward the service to mentally ill patients."

LOUISIANA

Faculty Promotions.—The following promotions of physician faculty members have been announced by the Tulane University of Louisiana School of Medicine, New Orleans.

Professors: Jack K. Wickstrom (orthopedics) and Donovan C. Browne (clinical medicine).

Associate Professors: James W. Burks Jr. and Lee D. McLean (clinical medicine); Jason H. Collins and John C. Weed (clinical obstetrics and gynecology); and Homer D. Kirgis (anatomy and clinical surgery).

Assistant Professors: Daniel W. Beacham and Frank G. Nix (clinical obstetrics and gynecology); Robert Birchall, Edward R. Christian, Stanley Cohen, Allan M. Goldman, Richard H. Linn, Arthur R. Payzant, Thomas E. Weiss, and Norton W. Voorhies (clinical medicine); Murl E. Faulk Jr. (neurology and surgery); Patrick H. Hanley and Charles R. Walters (clinical surgery); William D. Love (medicine); and Samuel M. Peacock Jr. (neurology).

MASSACHUSETTS

Institute of Psychiatric Treatment.—An Institute of Psychiatric Treatment will be held in the reception building of the Boston State Hospital Sept. 29 to Oct. 1. Dr. Leo Alexander and Dr. Robert Arnot will open the institute at 9 a. m. Thursday with "Combined Psychologic-Physiologic Treatment of Mental Disorder—Neurophysiologic Foundation," which will be followed by clinical demonstrations by Dr. Leo Alexander and Dr. Irving E. Gilbert, Boston. Group discussion at lunch will be concerned with "Experiences in Treating Schizophrenia." The afternoon session will be devoted to a symposium and group discussion on new drugs, including Thorazine and Serpasil. The Friday program will include a clinical demonstration on electronarcosis by Dr. Esther Bogen Tietz, Los Angeles; a group luncheon discussion of experiences in treating anxiety; a symposium on patient management and rehabilitation; and dinner, 7 p. m., at the Harvard Club. The Saturday session will include a clinical demonstration on electric coma by Dr. Brian C. Campden-Main, Petersburg, Va., and a symposium and group discussion on psychotherapy, in which that subject will be discussed by Dr. Hans Lowenbach, Durham, N. C., and "Analytic Psychotherapy of the Psychoses" by Dr. John N. Rosen, New York. Registration fee is $35. Correspondence may be addressed to Dr. Alexander, 433 Marlborough St., Boston.

MICHIGAN

Hospital News.—The Bon Secours Hospital presented its eighth annual clinic day program June 7 at Grosse Pointe. Dr. Dwight J. Dutcher, Grosse Pointe Farms, moderated the morning session and Dr. Joseph B. Woolfenden, Detroit, the afternoon session. For the evening program, Dr. Donald N. Sweeny Jr., Detroit, general chairman of the program, served as moderator.

State Society Wins Award.—For its program in recruiting and training medical associates to extend the best medical care to the greatest number of Michigan citizens, the Michigan State Medical Society has received the Grand Award for State Associations in the annual contest for outstanding activities sponsored by the American Trade Association Executives. A bronze plaque was presented at the 35th anniversary meeting of the association in Mackinac Island to Dr. William Bromme, Detroit, chairman of the council of the Michigan society. The society inaugurated the medical associates' recruitment and training program shortly after World War II, when it became apparent that there was great need for laboratory technicians, medical secretaries, nurses, and other specialists. Since that time, thousands of Michigan young people have been attracted to enter careers in many fields of medicine and health as a result of the MSMS campaign, educational facilities have been set up at a number of Michigan universities and junior colleges, and doctors have been encouraged to make greater use of medical associates in the interest of serving the maximum number of people.

MISSOURI

Dr. Moore Resigns as Dean.—Washington University, St. Louis, announces that Dr. Carl V. Moore, St. Louis, dean of Washington University School of Medicine for the past two years, has resigned and has been appointed Busch Professor of Medicine and head of the department of internal medicine. Dr. Moore, who succeeds Dr. W. Barry Wood Jr. in both posts, also will become physician-in-chief to Barnes Hospital. His appointments were effective Sept. 1, but he will continue as dean until a successor is named.

NEW YORK

Emergency Medical Institutes.—The state Office of Medical Defense has announced that its 1955 fall series of training institutes will inaugurate a program to train personnel to work in civil defense-improvised hospitals after an enemy attack. A short evening meeting providing an orientation to the use of the state mobile hospital outfit as the equipment unit of an improvised emergency hospital, set up in schools or other preselected buildings, will be open to physicians and hospital personnel. The mobile hospital outfit, which is being stock-piled throughout the state, will be used to equip 200-bed improvised emergency hospitals. The outfit contains sufficient equipment and supplies to keep the hospital in operation 10 days. Institutes will be held in 14 locations and will run from Sept. 15 through Nov. 15. All interested physicians are invited to attend one or all of the sessions. The following schedule has been announced for western New York:

Oct. 19, Buffalo, University of Buffalo, Capen Hall, 3435 Main St.
Oct. 25, Rochester, Rochester Academy of Medicine, 1441 East Ave.
Oct. 27, Corning, Corning Glass Center.
Nov. 2, Niagara Falls, Niagara Falls City Hall, Main Street.
Nov. 4, Jamestown, New York State Armory, Porter Avenue.

New York City

University News.—A psychology major emphasizing clinical psychopathology will be offered this fall by Barnard College and the Payne-Whitney Psychiatric Clinic of the New York Hospital-Cornell Medical Center. The course is designed to improve the students' understanding of work in psychiatric hospitals through clinical course work and experience on the floors at the Payne-Whitney Clinic. The program has been developed by Dr. Oskar Diethelm, psychiatrist-in-chief of the New York Hospital, and Richard P. Youtz, Ph.D., executive officer of the Barnard psychology department.

Dr. Philips in New Post.—Frederick S. Philips, Ph.D., head of the department of pharmacology, division of experimental chemotherapy, Sloan-Kettering Institute for Cancer Research, will become research consultant for the American Cancer Society on Sept. 6. In his new post, Dr. Philips will be concerned with research directed toward finding chemotherapeutic agents effective against cancer in man. Before joining the Sloan-Kettering Institute in 1946, Dr. Philips was associated with the University of Rochester (N. Y.); Yale University, New Haven, Conn.; Massachusetts Institute of Technology, Cambridge; and the

Medical Research Laboratory at Edgewood Arsenal, Md. While on the staff at Sloan-Kettering Institute, he served as assistant professor in the department of pharmacology, Cornell University Medical College.

OHIO

General Practitioners Meet in Dayton.—The fifth Annual Scientific Assembly of the Ohio Academy of General Practice will be held at the Dayton-Biltmore Hotel Sept. 20-21. Presentations by out-of-state speakers will include:

Management of Poliomyelitis, George J. Boines, Wilmington, Del.
Treatment of Acne, Alice E. Palmer, Detroit.
The Diarrheal Syndrome, Jerome Weiss, New York.
Use and Abuse of Hormones, John J. Bailey, Chicago.

OKLAHOMA

Chicago Position Accepted by John Hart.—John K. Hart, formerly associate executive secretary of the Oklahoma State Medical Association, has accepted a position in Chicago as executive secretary of the American Academy of Orthopaedic Surgeons. Mr. Hart had been with the state association for seven years. Mr. Don Blair has been appointed to succeed Mr. Hart.

Personal.—Dr. Kenneth W. Navin, Shawnee, city-county health director, was recently named "Knight of the Year" by the Shawnee Knights of Columbus.——Dr. Orange W. Starr, a past-president of the Creek County Medical Society, was honored at a picnic June 19 in Whitlock Park, in celebration of the 40th anniversary of his practice in Drumright. All "Starr brand" babies and their parents were invited as guests. A "This Is Your Life" sketch was presented, with state representative Lou S. Allard acting as master of ceremonies. A "stomp" dance was given by Indians from the Sac and Fox agency.——Dr. William E. Seba, Leedey, was recently given the honor of being the first to cross the new million dollar Camargo bridge. Dr. Seba is said to have crossed the South Canadian river near the bridge site more times than any other resident of the area, using practically every method of transportation, including fording the stream with horse and buggy.——Drs. J. R. Hinshaw, Oklahoma City, and Felix M. Adams, Vinita, were recently inducted into the Oklahoma Hall of Fame at a dinner in Oklahoma City. Dr. Hinshaw, who served with the Army at the headquarters of the Persian Gulf command during World War II, has been a staff physician at the University of Oklahoma Health Service since 1947. Dr. Adams has been medical superintendent at Eastern State Hospital, Vinita, since it opened in 1913.

PENNSYLVANIA

Pathologists Meet in Pittsburgh.—The middle eastern region of the College of American Pathologists, the Pennsylvania Association of Clinical Pathologists, and the Clinical Pathological Society of Pittsburgh will hold a joint meeting at the Roosevelt Hotel, Pittsburgh, Sept. 16-17. The Friday morning session will be devoted to a panel discussion on perinatal pathology and the afternoon program to a slide seminar, "Hazards of Therapy." Dr. A. Reynolds Crane, Philadelphia, will serve as moderator and Dr. Frank J. Dixon, Pittsburgh, as referee. (Slide sets will be sent to registrants two weeks before the meeting. Apply to Dr. Frank E. Sherman, Children's Hospital, Pittsburgh 13. Registration fee for slide seminar, $6.) The Clinical Pathological Society of Pittsburgh will be host at the social hour, 6 p. m., preceding the banquet. The Saturday morning program includes presentation of "Neuroblastoma in Childhood" by Dr. Robert C. Horn Jr., Henry Ford Hospital, Detroit, and a panel discussion, "A Proposed Blood Exchange Program."

Philadelphia

Frank Wister Thomas Professorship.—The University of Pennsylvania School of Medicine announces the establishment of the Frank Wister Thomas Professorship of Medicine, named for the late Dr. Thomas, an honor graduate in the school of medicine (class of 1880), who died in 1928 after having practiced medicine in Philadelphia for nearly 50 years. Dr. Francis C. Wood, chairman of the department of medicine, will be the first to hold the new professorship. Funds for the establishment of the chair were provided in the will of Dr. Thomas' widow, who also specified that "the head or chief professor of medicine at the Medical School" should occupy the chair. Dr. Wood has been associated with the medical faculty at Pennsylvania since 1928. During World War II he served in India for two years as chief of medical service in the 20th General Hospital Unit, which was organized at the University of Pennsylvania. He is a director of the Philadelphia County Medical Society.

SOUTH CAROLINA

Society News.—A joint meeting of the North Carolina Eye, Ear, Nose, and Throat Society and the South Carolina Society of Ophthalmology and Otolaryngology will be held at the Columbia Hotel in Columbia, Sept. 12-14. Guest speakers on ophthalmology will be Drs. Edward W. D. Norton and Frank D. Carroll, New York, and Dr. William B. Clark, New Orleans.

Piedmont Seminar.—The annual meeting of the Piedmont Postgraduate Seminar will be held at Clemson House Sept. 14-15. Out-of-state speakers will include Drs. John R. McCain and Edgar F. Fincher, Emory University, Ga.; Drs. Albert Vander Kloot, Anton M. Pantone, and Roger A. Harvey, Chicago; Dr. George D. Page, Charlotte, N. C.; and Dr. Bertram E. Sprofkin, Nashville, Tenn. Dr. Vander Kloot will discuss "Congestive Heart Failure" at the banquet Wednesday, and Dr. Harvey will deliver the Rose E. Romer Lecture at the Thursday banquet.

WASHINGTON

State Medical Meeting in Seattle.—The 66th annual session of the Washington State Medical Society will convene in Seattle Sept. 11-14 under the presidency of Dr. M. Shelby Jared, Seattle. Dr. Jared's presidential address Tuesday, 11 a. m., will be followed by a discussion of "Medicine, Legislation, and the Law" by C. Joseph Stetler, LL.M., Chicago, Director, A. M. A. Law Department. The annual banquet and dance (dress optional) will be held Tuesday. The public relations luncheon Wednesday noon will be addressed by Governor Arthur B. Langlie and by Dr. Elmer Hess, Erie, Pa., President of the American Medical Association, whose subject will be "How to Live Your Ethics." The president's reception will be held at 6:30 p. m. Dr. George N. Aagaard, Seattle, dean of the University of Washington School of Medicine, will address the house of delegates on medical school problems. Dr. William B. Bean, head, department of medicine, State University of Iowa College of Medicine, Iowa City, is scheduled to open the scientific sessions on Tuesday with "Recent Setbacks in Medicine" and to begin the Wednesday sessions with "Clinical Significance of Vascular Changes in the Skin and Mucous Membranes." Dr. Walter C. MacKenzie, department of surgery, University of Alberta Faculty of Medicine, Edmonton, Alberta, Canada, will open the Tuesday afternoon session with "Why Do Inguinal Hernias Recur?" and the Wednesday afternoon program with "Stop—Don't Operate!" There will be a no-host family dinner on Sunday at 6:30 p. m. Monday has been reserved for a salmon fishing derby (4:30 a. m., Ray's Boat House), the annual golf tournament (8:30 a. m., Seattle Golf Club), and the Sportsmen's Banquet (6:30 p. m., Seattle Golf Club). The woman's auxiliary, meeting simultaneously, will hold its annual luncheon Tuesday at 12:30 p. m. Addresses will be delivered by the national president, Mrs. Mason G. Lawson, Little Rock, Ark., and by Dr. Hess.

HAWAII

Report on Public Health.—According to the department of health, 1954 was the first year in which no deaths from tetanus occurred in the territory of Hawaii. The annual report indicates that 41 years have passed without a case of smallpox; 9 years without a death from diphtheria (only one case was reported for 1954); and 8 years without a death from typhoid fever (5 consecutive years without a single case). The tuberculosis rate of 9.3 showed a slight rise over the record low of 8.9 in 1953. Twenty new cases of leprosy (Hansen's disease) were confirmed, but only 10 patients needed isolation and the other 10 were granted outpatient status. Only seven maternal deaths occurred during the year. Of the 16,191 live births, the infant mortality rate was 22.4 per 1,000. Almost half the infant deaths were due to prematurity. Both maternal and infant death rates were lower than the national average.

GENERAL

Medical Examiner Staff Needed in Florida.—By recent act of the Florida State Legislature, a medical examiner's system has been established in Dade County effective Oct. 1. Funds have been provided for (1) employment of a full-time medical examiner, two part-time pathologists as assistant medical examiners, a toxicologist, secretaries, and other necessary personnel and (2) construction and equipment of a morgue and laboratories. Applicants for the position of chief medical examiner should address: Dr. Charles C. Hillman, Jackson Memorial Hospital, Miami, Fla.

Research Fellowship in Israel.—Applications are invited for the award of the Max and Rebecca Schrire Medical Research Fellowship (about $1,112) to a postgraduate student for research in medicine, with particular stress on ophthalmology, to be carried out at the Hebrew University in Jerusalem. Applications, containing biographical data, a brief outline of the proposed research project, and details on previous work, if any, should be forwarded to the Office of the Dean, The Hebrew University-Hadassah Medical School, P. O. B. 1255, Jerusalem, Israel, not later than Oct. 1, 1955.

Laurentian Hormone Conference.—The Laurentian Hormone Conference of the American Association for the Advancement of Science will hold its annual meeting at the Hotel Stanley, Estes Park, Colo., Sept. 11-16. The 14 presentations will include:

Biosynthesis and Metabolism of Thyroid Hormone, J. Roche, College de France, Paris, France.
Biosynthesis of the Sterols and Steroid Hormones, with Particular Reference to the Estrogens, R. D. H. Heard, McGill University School of Medicine, Montreal, Canada.
Male Sex Hormone and Its Role in Reproduction, Thaddeus Mann, University of Cambridge, England.

Uniform Sales Swindle.—Physicians are warned that one Herschel L. Rhodus is apparently operating a "confidence game" involving the sale of professional uniforms. Representing himself as a salesman for garment manufacturers, Rhodus allegedly collects cash deposits and payments for orders on uniforms that are not forwarded to the manufacturers. Rhodus is described as about 40 years old; height, 6 feet; weight, 185 pounds; sandy hair; frequently using the nickname "Doc." Formerly of Philadelphia, he is believed to be currently operating in Connecticut. Word has been received that warrants for his arrest are held by the police departments of Belleville, Ill., and Summit, N. J., to whom information concerning him should be sent.

Workshop in Medical Writing.—The American Medical Writers' Association will offer a workshop in medical writing Oct. 1, from 8 a. m. to 12 noon, during the annual meeting at the Hotel Jefferson, St. Louis. Dr. Richard M. Hewitt, Rochester, Minn., will serve as coordinator. The following presentations will be made:

From First Draft to Printed Article, Paul L. Fisher, Ph.D., School of Journalism, University of Missouri.
Specific Devices for Increasing the Readership of Medical Articles, Stewart Harral, M.A., School of Journalism, University of Oklahoma.
Writing Magazine Articles for the Lay Reader, Theodore B. Peterson, Ph.D., School of Journalism and Communications, University of Illinois.

There is no charge to members of the A. M. W. A.; for others the fee is $5. Those who intend to enroll are invited, well in advance of the meeting, to send manuscripts of popular medical articles to Theodore Peterson, Assistant Professor, School of Journalism and Communications, University of Illinois, Urbana. He will criticize some of these manuscripts at the workshop.

Meeting on Pharmacology.—The American Society for Pharmacology and Experimental Therapeutics will hold a meeting and a symposium on the teaching of pharmacology at the State University of Iowa, Iowa City, Sept. 4-8. Monday will be devoted to the symposium, "The General Principles of Excitability of Cardiac Tissue and Their Pharmacological Control," with Dr. Gordon K. Moe, Syracuse, N. Y., as moderator. In the evening Dr. Douglas S. Riggs, Buffalo, will moderate a symposium on graduate teaching in pharmacology. A panel discussion, "Chemical Bonding and the Molecular Level of Drug Interaction," Tuesday, 2-4 p. m. and 8-10 p. m., will have as moderator Fred W. Schueler, Ph.D., Iowa City. In all, 150 papers will be presented.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated:

Area	Aug. 13, 1955		Aug. 14, 1954, Total
	Paralytic Type	Total Cases Reported	
New England States			
Maine	5	18	6
New Hampshire	..	24	7
Vermont	Not available	Not available	2
Massachusetts	206	411	39
Rhode Island	1	16	1
Connecticut	12	50	17
Middle Atlantic States			
New York	40	117	87
New Jersey	..	39	39
Pennsylvania	..	43	57
East North Central States			
Ohio	18	94	108
Indiana	10	27	48
Illinois	33	75	96
Michigan	26	92	118
Wisconsin	35	135	37
West North Central States			
Minnesota	13	73	52
Iowa	5	61	78
Missouri	6	16	49
North Dakota	..	4	6
South Dakota	..	1	4
Nebraska	8	16	23
Kansas	7	12	45
South Atlantic States			
Delaware	3	3	4
Maryland	15	18	8
District of Columbia	1	1	4
Virginia	4	23	39
West Virginia	4	11	22
North Carolina	5	36	69
South Carolina	8	23	22
Georgia	2	10	56
Florida	2	12	63
East South Central States			
Kentucky	11	43	33
Tennessee	..	8	43
Alabama	5	11	17
Mississippi	4	9	40
West South Central States			
Arkansas	9	16	16
Louisiana	6	12	18
Oklahoma	2	5	37
Texas	33	79	160
Mountain States			
Montana	3	6	4
Idaho	6	9	3
Wyoming	Not available	Not available	24
Colorado	4	8	26
New Mexico	3	10	12
Arizona	..	2	15
Utah	..	6	2
Nevada	..	..	13
Pacific States			
Washington	4	14	26
Oregon	10	12	12
California	29	70	197
Territories and Possessions			
Alaska	1	2	24
Hawaii	5	8	5
Puerto Rico	2	2	..
Total	606	1,793	1,933

Meeting of Obstetricians and Gynecologists.—The American Association of Obstetricians and Gynecologists will hold its 66th annual meeting at the Homestead, Hot Springs, Va., Sept. 8-10, under the presidency of Dr. Thaddeus L. Montgomery, Philadelphia. Presentations by invitation will include:

Analysis of 6,891 Hysterectomies for Benign Pelvic Disease (with Special Reference to the Safety of Routine Total Abdominal Hysterectomy), C. Gordon Johnson, New Orleans.
Experience with the Use of Radioactive Colloidal Gold in Treatment of Ovarian Carcinoma, William C. Keettel, Iowa City.
Complications of Pregnancy and Nutritional Status (Toxemias of Pregnancy), Harold C. Mack, Detroit.
Cesarean Section in Cincinnati, Ohio, 1950 Through 1954, Richard D. Bryant, Cincinnati.
Statistical Study of 12 Possible Factors Governing Postpartum Bleeding, Raymond A. Schwegler, Lawrence, Kan.

Thursday at 8:45 p. m. Dr. J. Chassar Moir of Oxford, England, will deliver the Joseph Price Oration. The presidential address is scheduled for Friday noon, and the banquet will be addressed at 7:30 that evening by the Hon. George C. Corson, Plymouth Meeting, Pa. The annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons Foundation, Inc., will be held at the Homestead at 2:30 p. m. Thursday.

CANADA

Meeting on General Practice.—The Ontario chapter, College of General Practice of Canada, will present a symposium on medical practice at the Royal York Hotel, Toronto, Sept. 22. The morning session, moderated by Dr. Sandford English, Fort Erie, Ontario, will include "Pitfalls in Diagnosis" by Dr. Ray F. Farquharson, Toronto; "Lesions of the Prostate" by Dr. Harry R. Newman, New Haven, Conn.; and "Advances in Cardiovascular Surgery" by Dr. Eric M. Nanson, Saskatoon. Dr. Peter A. Kinsey, Toronto, will serve as moderator for the following afternoon program: "Renal Disease in Children," Dr. Weston M. Kelsey, Winston-Salem, N. C.; "The Significance of Bleeding Late in Pregnancy," Dr. Kenneth T. MacFarlane, Montreal; and "Office Procedures in Proctology," Dr. Louis A. Buie, Rochester, Minn. Questions and panel discussion will follow both sessions. Wives of physicians are invited to attend the luncheon, 12:15 p. m. (Dr. Max Alexandroff, St. Catharines, Ontario, chairman), and reception, 5:30-6:30 p. m. The symposium will be cosponsored by Lederle Laboratories Division of North American Cyanamid Limited.

DEATHS IN OTHER COUNTRIES

Dr. Thomas Jeeves (Lord) Horder, physician to Queen Elizabeth II, died at his home in Petersfield, England, Aug. 13, after a heart attack. Dr. Horder had served as president of the Harveian Society of London, the Fellowship of Medicine, the Medical Society of London, the Eugenics Society, and the British Association of Physical Medicine and had been chairman of the British Empire Cancer Campaign, the Empire Rheumatism Council, and the Noise Abatement League.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

National Conference on Physicians and Schools, Moraine-on-the-Lake Hotel, Highland Park, Ill., Oct. 12-14. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago, Director.

Academy of Psychosomatic Medicine, Hotel Plaza, New York, Oct. 6-8. Dr. Ethan Allan Brown, 75 Bay State Road, Boston 15, Secretary.

American Academy for Cerebral Palsy, Claridge Hotel, Memphis, Tenn., Oct. 10-12. Dr. Robert A. Knight, 869 Madison Ave., Memphis 3, Tenn., Secretary.

American Academy of Neurological Surgery, The Homestead, Hot Springs, Va., Oct. 27-29. Dr. Eben Alexander Jr., Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago, Oct. 9-14. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

American Academy of Pediatrics, Palmer House, Chicago, Oct. 3-6. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Executive Secretary.

American Association of Medical Record Librarians, LaSalle Hotel, Chicago, Oct. 3-7. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Director.

American Association of Nursing Homes, Hotel Muehlebach, Kansas City, Mo., Sept. 19-21. Mr. Ira O. Wallace, P.O. Box 366, New Castle, Ky., Secretary.

American Association of Obstetricians and Gynecologists, The Homestead, Hot Springs, Va., Sept. 8-10. Dr. Frank R. Lock, Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

American Association for the Surgery of Trauma, Drake Hotel, Chicago, Oct. 27-29. Dr. James K. Stack, 700 N. Michigan Blvd., Chicago 11, Secretary.

American College of Gastroenterology, Edgewater Beach Hotel, Chicago, Oct. 24-26. Dr. Joseph Shaiken, 33 West 60th St., New York 23, Secretary.

American College of Hospital Administrators, Convention Hall, Atlantic City, N. J., Sept. 17-19. Mr. Dean Conley, 620 North Michigan Ave., Chicago 11, Executive Director.

American Dental Association, San Francisco, Oct. 17-20. Dr. Harold Hillenbrand, 222 East Superior St., Chicago 11, General Secretary.

American Fracture Association, Hotel Fontainebleau, Miami Beach, Fla., Sept. 19-22. Dr. Homer D. Junkin, Paris Hospital, Paris, Ill., Secretary.

American Heart Association, Yung Hotel, New Orleans, Oct. 22-26. Mr. Irving Hexter, 44 East 23d St., New York 10, Secretary.

American Hospital Association, Traymore Hotel, Atlantic City, N. J., Sept. 19-22. Dr. Edwin L. Crosby, 18 East Division St., Chicago 10, Director.

American Medical Writers' Association, Jefferson Hotel, St. Louis, Sept. 30-Oct. 1. Dr. Harold Swanberg, P.O. Drawer 110, Quincy, Ill., Secretary.

American Physiological Society Fall Meeting, Tufts College, Medford, Mass., Sept. 6-9. Dr. Allan C. Burton, Univ. of Western Ontario, London, Ont., Canada, Secretary.

American Roentgen Ray Society, Palmer House, Chicago, Sept. 20-23. Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretary.

American Society of Anesthesiologists, Hotel Statler, Boston, Oct. 29-Nov. 3. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago 1, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Fall Meeting, State University of Iowa, Iowa City, Sept. 4-8. Dr. Carl C. Pfeiffer, Emory University School of Medicine, Emory University, Ga., Secretary.

American Society of Plastic and Reconstructive Surgery, Atlantic City, N. J., Sept. 25-30. Dr. Kenneth L. Pickrell, Duke Hospital Durham, N. C., Secretary.

Association of American Medical Colleges, New Ocean House, Swampscott, Mass., Oct. 24-26. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

Association of American Physicians and Surgeons, Chicago, Oct. 7-8. Mr. Harry E. Northam, 185 N. Wabash Ave., Chicago 1, Executive Secretary.

Association of Life Insurance Medical Directors of America, Hotel Statler, New York, Oct. 19-21. Dr. Henry B. Kirkland, P. O. Box 594, Newark, N. J., Secretary.

Central Association of Obstetricians and Gynecologists, Deshler-Hilton Hotel, Columbus, Ohio, Oct. 5-8. Dr. Edwin J. DeCosta, Suite 602, 116 S. Michigan Ave., Chicago 3, Secretary.

Central Neuropsychiatric Association, The Broadmoor, Colorado Springs, Colo., Oct. 20-22. Dr. Hamilton Ford, 112 North Boulevard, Galveston, Tex., Seceretary.

Clinical Orthopaedic Society, Skirvin Hotel, Oklahoma City, Sept. 30-Oct. 1. Dr. Marcus J. Stewart, 869 Madison Ave., Memphis, Tenn., Executive Secretary.

College of American Pathologists, Drake Hotel, Chicago, Oct. 10-15. Dr. Arthur H. Dearing, 203 N. Wabash Ave., Chicago 1, Executive Secretary.

Colorado State Medical Society, Shirley-Savoy Hotel, Denver, Sept. 20-23. Mr. Harvey T. Sethman, 835 Republic Bldg., Denver 2, Executive Secretary.

Congress of Neurological Surgeons, Hotel Statler, Los Angeles, Oct. 27-29. Dr. Philip D. Gordy, 1007 Delaware Ave., Wilmington, Del., Secretary.

Delaware, Medical Society of, Delaware Academy of Medicine, Wilmington, Oct. 17-18. Dr. Norman L. Cannon, 621 Delaware Ave., Wilmington, Secretary.

District of Columbia, Medical Society of the, Hotel Statler, Washington, D. C., Oct. 10-12. Mr. Theodore Wiprud, 1718 M St., N.W., Washington 6, D. C., Executive Director.

Gerontological Society, Sheraton-Belvedere Hotel, Baltimore, Oct. 27-29. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

Gulf Coast Clinical Society, Pensacola, Fla., Oct. 27-28. Dr. Barkley Beidleman, 1750 N. Palafox St., Pensacola, Fla., Secretary.

Indiana State Medical Association, French Lick Springs Hotel, French Lick, Oct. 16-19. Mr. James A. Waggener, 23 East Ohio St., Indianapolis 4, Executive Secretary.

Industrial Health Conference, Shamrock Hotel, Houston, Texas, Sept. 22-23. Dr. Sidney Schnur, 411 Medical Arts Bldg., Houston 2, Texas, Chairman.

Kansas City Southwest Clinical Society, Municipal Auditorium, Kansas City, Mo., Oct. 3-6. Dr. W. M. Kitchen, 306 E. Twelfth St., Kansas City 6e, Mo., Secretary.

Kentucky State Medical Association, Louisville, Sept. 27-29. Mr. J. P. Sanford, 620 S. Third St., Louisville, Executive Secretary.

Michigan State Medical Society, Pantlind Hotel, Grand Rapids, Sept. 26-30. Dr. L. Fernald Foster, 606 Townsend St., Lansing 5, Secretary.

Midwest Conference on Rheumatic Diseases, Henry Ford Hospital, Detroit, Oct. 5. Dr. J. J. Lightbody, 7338 Woodward Ave., Detroit 2, Medical Director.

Mississippi Valley Medical Society, Jefferson Hotel, St. Louis, Sept. 28-30. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Mississippi Valley Trudeau Society, Hotel Savery, Des Moines, Iowa, Oct. 14. Dr. Harold G. Curtis, Sunny Acres, Cuyahoga County Tuberculosis Hospital, Cleveland 22, Chairman, Program Committee.

Montana Medical Association, Baxter Hotel, Bozeman, Sept. 15-18. Mr. L. R. Hegland, P.O. Box 1692, Billings, Executive Secretary.

New Hampshire Medical Society, Mt. Washington Hotel, Bretton Woods, Sept. 29-Oct. 1. Dr. Warren H. Butterfield, 18 School St., Concord, Secretary.

North Texas-Southern Oklahoma Fall Clinical Conference, Wichita Falls, Tex., Sept. 17. Dr. E. C. Bebb, Broad St., Wichita Falls, Tex., Chairman.

Oklahoma City Clinical Society Conference, Oklahoma City, Oct. 24-27. Dr. Charles E. Leonard, 512 Medical Arts Bldg., Oklahoma City 2, Secretary.

Omaha Mid-West Clinical Society, Hotel Paxton, Omaha, Oct. 24-27. Mrs. Anne K. Ramsey, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

Oregon State Medical Society, Hotel Heathman, Portland, Sept. 28-Oct. 1. Dr. Richard R. Carter, 1020 S.W. Taylor St., Portland 5, Secretary.

Pennsylvania, Medical Society of the State of, William Penn Hotel, Pittsburgh, Sept. 18-23. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

Postgraduate Assembly in Endocrinology and Metabolism, Indianapolis, Sept. 26-Oct 1. Dr. John J. Mahoney, Assistant Dean, Indiana University School of Medicine, 1040 W. Michigan St., Indianapolis 7.

Regional Meetings, American College of Physicians:

Jamestown, N. D., Sept. 10. Mr. E. R Loveland, 4200 Pine St., Philadelphia 4, Executive Secretary.

Madison, Wis., Oct. 15. Dr. Howard Wakefield, 122 S. Michigan Ave., Chicago 3, Governor.

Society of General Physiologists, Marine Biological Laboratory, Woods Hole, Mass., Sept. 9-10. Dr. A. M. Shanes, National Institutes of Health, Bethesda 14, Md.

Southwestern Surgical Congress, Muehlebach Hotel, Kansas City, Mo., Sept. 5-7. Dr. C. M. O'Leary, 207 Plaza Court Bldg., Oklahoma City, Secretary.

Tennessee Valley Medical Assembly, Read House, Chattanooga, Tenn., Oct. 3-4. Dr. Harry E. Jones, 109 Medical Arts Bldg., Chattanooga 2, Tenn., Secretary.

The Constantinian Society, Sheraton-Park Hotel, Washington, D. C., Oct. 26-29. Dr. C. F. Shook, P. O. Box 1035-36, Toledo 1, Ohio, Secretary.

Tri-State Medical Society, Grim Hotel, Texarkana, Tex., Sept. 28-29. Dr. Karlton H. Kemp, 408 Hazel St., Texarkana, Ark., Secretary.

U. S. Chapter, International College of Surgeons, Convention Hall, Philadelphia, Sept. 12-15. Dr. Karl Meyer, 1516 Lake Shore Drive, Chicago 10, Secretary.

Utah State Medical Association, Union Bldg., Salt Lake City, Sept. 8-10. Mr. H. Bowman, 42 S. Fifth East St., Salt Lake City 2, Executive Secretary.

Vermont State Medical Society, Mt. Washington Hotel, Bretton Woods, N. H., Sept. 29-Oct. 1. Dr. James P. Hammond, 337 South St., Bennington, Secretary.

Virginia, Medical Society of, Hotel Jefferson, Richmond, Oct. 16-19. Mr. Robert I. Howard, 105 West Franklin St., Richmond, Executive Secretary.

Washington State Medical Association, Olympic Hotel, Seattle, Sept. 11-14. Dr. Frederick A. Tucker, 1309 Seventh Ave., Seattle 1, Secretary.

Western Association of Railway Surgeons, Las Vegas, Nev., Sept. 22-24. Dr. Leo L. Stanley, 1322 Fifth Ave., San Rafael, Calif., Secretary.

FOREIGN AND INTERNATIONAL

Canadian Society for the Study of Fertility, Royal York Hotel, Toronto, Ont., Canada, Oct. 6-8. Dr. Earl R. Plunkett, 469 Waterloo St., London, Ont., Canada, Secretary.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Statler, Boston, Mass., U.S.A., Sept. 3-8, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of International Society for Research on Anesthesia, Miami Beach, Fla., U.S.A., Mar. 12-15, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of International Union of Railway Medical Services, Dubrovnik, Yugoslavia, Sept. 19-24. Dr. Jovanovic, Head Office, Yugoslav Railway, Belgrade, Yugoslavia, President.

Congress of International Union Against Venereal Diseases, Naples, Italy, Sept. 25-28. For information address: Prof. Monacelli, University of Naples, Dept. of Dermatology, Naples, Italy.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

International Academy of Legal and Social Medicine, Plenary Conference, Genoa, Italy, Oct. 13-17. Prof. Domenico Macaggi, Institut de Medicine legale, Universite de Genes, Genes, Italy, President.

International Conference of Medical Librarians and Reference Librarians, University Hall, Brussels, Belgium, Sept. 10. For information address: Miss Ch. de Looze, Librarian ℅ Oeuvre Nationale Belge de Defense contra la Tuberculose, 56, rue de la Concorde, Brussels, Belgium.

International Congress of Allergology, Rio de Janeiro, Brazil, S. A., Nov. 6-13. Dr. Bernard N. Halpern, 197 boulevard St. Germain, Paris 7e, France, Secretary General.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress of Criminology, London, England, Sept. 11-18. For information write: Dr. Carroll, 28 Weymouth St., London, W.1, England.

International Congress of European Society of Haematology, Freiburg i,Br., Germany, Sept. 20-24. Prof. Dr. L. Heilmeyer, Hugstetter Strasse 55, Freiburg i,Br., Germany, Chairman.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Buenos Aires, Argentina, S. A., Nov. 19-24, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of International Society of Bronchoesophagology, Buenos Aires, Argentina, S. A., Oct. 28-29. Dr. Juan Carlos Arauz, Cangallo 4015, Buenos Aires, Argentina, S. A., Secretary General.

International Congress of Librarianship and Documentation, Brussels, Belgium, Sept. 11-18. For information write: Dr. A. C. Breycha-Vauthier, Librarian, United Nations, Geneva, Switzerland.

International Congress of Medical Professional Jurisdiction, Medical Ethics, and Comparative Medical Law, Paris, France, Sept. 30-Oct. 3. Dr. J. R. DeBray, Conseil National de L'Ordre des Medécins, 60, Boulevard Latour-Maubourg, Paris 7e, France, Secretary General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Prof. P. Delore, 13 rue Jarente, Lyon, France, Secretary-General.

International Congress of Neuropathology, London, England, Sept. 12-17. Dr. W. H. McMenemey, Maida Vale Hospital for Nervous Diseases, London, W.9, England, Secretary.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for Physical Therapy, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International General Medical Congress, University of Rosario Medical College, Rosario, Argentina, S. A., Nov. 7-12. Dean Jose Imhoff, Santa Fé 3100, Rosario, Argentina, S. A., Chairman.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

International Society for the Study of Biological Rhythms, Stockholm, Sweden, Sept. 15-17. For information write: Prof. Ture Petrén, Karolinska Institutet, Stockholm 60, Sweden.

International Vitamin E Congress, Cini Foundation, Island of San Giorgio Maggiore, Venice, Italy, Sept. 5-8. Prof. Emilio Raverdino, via Pietro Verri 4, Milano, Italy, Secretary.

Medical Journalism Meeting, Vienna, Austria, Sept. 23. For information address: World Medical Association, 345 East 46th St., New York, N. Y., U.S.A.

Neuroradiologic Symposium, London, England, Sept. 13-17. Dr. R. D. Hoare, National Hospital, Queen Square, London, W.C.1, England, Secretary.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P.O. Box 672, Cairns, N.Q., Australia, Secretary.

Pan American Congress of International College of Surgeons, Mendoza City, Argentina, S. A., Oct. 22-26. For information address: Secretary, Caseros Av. 2154, Buenos Aires, Argentina, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Medical Social Convention, Bogota, Colombia, S. A., Oct. 15-22. Dr. Leopoldo E. Araujo, Avenida de los Presidentes Num. 506, Apartado 2589, La Habana, Cuba, Secretary.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

Venezuelan Congress of Medical Sciences, Caracas, Venezuela, S. A., Nov. 18-26. Dr. A. L. Briceno Rossi, Apartado 4412, Ofic. del Este, Caracas, Venezuela, S. A., Secretary General.

World Congress of Anesthesiologists, Scheveningen, Netherlands, Sept. 5-10. For information write: Mr. W. A. Fentener van Vlissingen, Noord-Houdringelaan, 24, Bilthoven, Netherlands.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

World Medical Association, Vienna, Austria, Sept. 20-26. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., U. S. A., Secretary General.

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Oral.* New York City, Oct. 23-27. *Written.* Various locations in United States and Canada, July 20, 1956. Final date for filing application is Jan. 20. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15.

American Board of Dermatology and Syphilology: *Oral.* Washington, D. C., Oct. 14-16. Final date for filing application was March 15. Sec., Dr. B. M. Kesten, One Haven Ave., New York 32, N. Y.

American Board of Internal Medicine: *Oral.* Portland, Ore., Sept. 14-16; Chicago, Nov. 30-Dec. 1. *Subspecialties. Cardiovascular Disease.* Chicago, Nov. 30. The closing date for acceptance of applications for gastroenterology was Feb. 1, and for cardiovascular disease the closing date was June 1. Exec. Sec., Dr. William A. Werrell, 1 West Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* New Haven, November. Oral examinations given in Spring and Fall. Final date for filing application for the Spring examination is October 1; for the Fall examination April 1. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

American Board of Obstetrics and Gynecology: *Written Examination and submission of Case Reports. Part I.* Various locations in United States and Canada, Feb. 3, 1956. Final date for filing application is Oct. 1. *Oral and Pathological Examinations. Part II.* Chicago, May 11-20, 1956. Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: *Practical Examination.* Chicago, Oct. 3-7. Final date for filing application for 1955 practical examination was July 1, 1954. *Written.* January, 1956. Final date for filing application was July 1. *Practical Examination.* St. Louis, Oct. 20-25, San Francisco, June 18-23. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

American Board of Orthopaedic Surgery: *Oral.* Jan. 26-27. Final date for filing application was Aug. 15. *Written.* Various cities, April 1956. Final date for filing application is Nov. 30. Sec., Dr. Harold A. Sofield, 116 South Michigan Ave., Chicago 3.

American Board of Otolaryngology: *Oral.* Chicago, Oct. 3-7. Final date for filing application is April. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

American Board of Pathology: *Written and Practical.* Chicago, Oct. 6-8. Sec., Dr. William B. Wartman, 303 E. Chicago Ave., Chicago.

American Board of Pediatrics: *Oral.* Chicago, Oct. 7-9; and Washington, D. C., Dec. 2-4. Admin. Sec., Mrs. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Physical Medicine and Rehabilitation. *Parts I and II.* Chicago, June 16-17. Sec., Dr. Earl C. Elkins, 200 First St., S. W., Rochester, Minn.

American Board of Plastic Surgery: *Oral and Written.* Philadelphia, Sept. 22-24. Corres. Sec., Miss Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

American Board of Preventive Medicine: *Certification in Public Health.* Kansas City, Mo., Nov. 10-12. Sec.-Treas., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore 5.

American Board of Proctology: *Part II.* Philadelphia, Sept. 17. Sec., Dr. Stuart T. Ross, 131 Fulton Ave., Hempstead, N. Y.

American Board of Psychiatry and Neurology: San Francisco, Oct. 17-18; New York City, December, Philadelphia, April 16-18, 1956. Sec., Dr. David A. Boyd, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: Chicago, Dec. 4. Final date for filing applications for the fall examination was July 1. Candidates who will complete their training by Dec. 31 will be eligible to appear for this examination. Sec., Dr. B. R. Kirklin, Kahler Hotel Bldg., Rochester, Minn.

American Board of Surgery: *Part I.* Centers throughout the United States, in Europe and in the Far East, Oct. 26 and March 28. Closing date for the October examination was July 1 and for the March examination is December 1. *Part II.* Buffalo, Sept. 26-27; Chicago, Oct. 27-28; New York City, Nov. 14-15; St. Louis, Dec. 12-13; New Orleans, Jan. 16-17; Los Angeles, Feb. 13-14; San Francisco, Feb. 16-17; Durham, Mar. 12-13; Boston, May 14-15 and Philadelphia, June 4-5. Sec., Dr. John B. Flick, 255 S. Fifteenth St., Philadelphia 2.

The Board of Thoracic Surgery: *Written.* Various Centers, Sept. 9. Final date for filing applications was July 1. Sec., Dr. Wm. M. Tuttle, 1151 Taylor Ave., Detroit 2.

MAGAZINE-TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of THE JOURNAL. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, Sept. 5

NBC-TV, 9 p. m. EDT. "Medic" will present "All the Lonely Night," a case history of a young woman whose deep-rooted emotional problems finally lead to a physical ailment—an ulcerated colon.

Wednesday, Sept. 7

NBC-TV, 11 a. m. EDT. "Home" features a report on "Medical and Health News" with Howard Whitman.

MAGAZINES

U. S. News & World Report, Aug. 26, 1955

"What You Should Know About Drinking," by Ralph A. Habas

Extracts from a book, "How to Live Without Liquor," in which the author seeks to answer questions about the drinking problem. In an accompanying statement, Dr. W. W. Bauer, Director of the American Medical Association's Bureau of Health Education, calls the presentation "scientific yet simple, compassionate yet uncompromising, realistic yet strongly encouraging."

Family Weekly Magazine, Aug. 28, 1955

"Let's Look at Hospital Costs," by Hal Levinson

"Hospital care in the U. S. today is the best in the world; and its cost is not nearly as high, comparatively, as the cost of other goods and services in this inflationary era." The article explains the cost of room accommodations, the operating room, laboratory work, and drugs.

Good Housekeeping, September, 1955

"Send for an Ambulance!" by Samuel Grafton

"Several thousand ambulance organizations in this country, public and private, stand ready around the clock to perform one of the most frightening tasks that can fall to anyone—that of moving a sick or injured person from home to street to hospital." A description of the work of ambulance crews, the equipment used, and suggestions on what the reader should do if it is necessary to call an ambulance.

Parents' Magazine, September, 1955

"Is That Stomach Ache Appendicitis?" by Constance Foster

"Operated on in time appendicitis is no longer the danger it was. But too late is still too late. So familiarize yourself with the symptoms described here, be alert, not panicky, and call your doctor."

"What to Tell Your Daughter," by Margaret Albrecht

Advice on what a mother should tell her daughter about menstruation.

Cosmopolitan, September, 1955

"The Miracle Makers," by Don Short

Doctors at Brooke Army Medical Center have won unbelievable victories in their war against burns.

"Headaches," by Lawrence Galton

The author reports current treatments for severe headaches. For migraine headaches, he mentions use of ergotamine tartrate with caffeine, injections of Dramamine, a new suppository called Pentergot, and reserpine. For tension headaches, new treatments available are Pentergot, Fiorinal, Miltown, reserpine, and Mephate.

DEATHS

Bernecker, Edward Martin ⊕ New York City; born in Seward, Neb., March 13, 1892; the Hahnemann Medical College and Hospital, Chicago, 1915; interned at the Metropolitan Hospital in Welfare Island, where he was resident surgeon in 1917, deputy medical superintendent in 1920, and later medical superintendent; medical superintendent of the Kings County Hospital in Brooklyn from 1935 to 1937, when he became general medical superintendent of the department of hospitals in the City of New York, serving until 1942; from 1942 to 1948 commissioner of hospitals; since January, 1949, hospital administrator of New York University-Bellevue Medical Center; served overseas during World War I; chief of the emergency medical service, New York City, from 1942 to 1945; fellow of the American College of Hospital Administrators and New York Academy of Medicine; member of the New York State Hospital Association and the American Hospital Association; died in the New York University Hospital June 27, aged 63, of a heart attack.

Reckord, Frank Frederick Dunott ⊕ Harrisburg, Pa.; born in Harrisburg Sept. 15, 1886; University of Pennsylvania School of Medicine, Philadelphia, 1911; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; during World War I examiner for diseases of the heart and lungs, and associate chief of the medical service in the base hospital at Camp Devens, Mass.; part-time chief medical officer, medical division, U. S. Veterans Bureau from 1920 to 1924; medical officer of the Pennsylvania state police department from 1917 to 1936; associate director, division of tuberculosis, Pennsylvania state department of health from 1914 to 1920; served the Harrisburg Hospital in various capacities; consultant in internal medicine at the Philadelphia Freemasons Memorial Hospital in Elizabethtown; in 1932 received the honorary degree of doctor of science from Gettysburg (Pa.) College; died July 5, aged 68, of cirrhosis of the liver (Laennec's).

Sawyer, Charles Douglas ⊕ Brooklyn; born in Port Chester, N. Y., July 28, 1906; Cornell University Medical College, New York City, 1931; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; member of the Industrial Medical Association, New York Surgical Society, and the Brooklyn Surgical Society; instructor in anatomy at the Long Island College of Medicine from 1935 to 1938; a major in the Medical Corps of the U. S. Army during World War II and was awarded the Southwest Pacific Ribbon and two combat stars; director of surgery at the Methodist Hospital; served on the associate attending staffs of the John E. Jennings Memorial and Kings County hospitals, and on the courtesy staff of the Peck Memorial Hospital; died in Sharon, Conn., July 10, aged 49, of recurrent myocardial infarction.

Flagg, Winthrop Maillot ⊕ Burlington, Vt.; born in North Attleboro, Mass., Jan. 24, 1910; University of Vermont College of Medicine, Burlington, 1934; professor of urology at his alma mater; specialist certified by the American Board of Urology; member of the New England Surgical Society; fellow of the American College of Surgeons; interned at the Mary Fletcher Hospital; a resident in urology at the Morrisania City Hospital in New York City; attending urologist at Fanny Allen Hospital in Winooski, Mary Fletcher and Bishop DeGoesbrian hospitals; consultant in urology at the Heaton Hospital in Montpelier, Brightlook Hospital in St. Johnsbury, Orleans County Memorial Hospital in Newport, and the Beatrice D. Weeks Memorial Hospital in Lancaster, N. H.; served during World War II; died June 26, aged 45, of coronary occlusion.

Sutherland, Edward Alexander ⊕ Madison College, Tenn.; born in Prairie du Chien, Wis., March 3, 1865; University of Tennessee College of Medicine, Memphis, 1914; president of Walla Walla College, College Place, Wash., from 1892 to 1897, of Battle Creek (Mich.) College, from 1897 to 1901, of Emmanuel Missionary College, Berrien Springs, Mich., from 1901 to 1904, and of Madison College from 1904 to 1946; executive secretary of the Seventh Day Adventist Commission on Rural Living from 1946 to 1950; since 1924 president of the Layman Foundation; medical superintendent of the Madison Sanitarium and Hospital from 1914 to 1940; chairman of the board of trustees of the Rural Educational Association from 1924 to 1946; editor of the *Madison Survey* from 1919 to 1946; died June 20, aged 90, of coronary occlusion.

Haverly, Norman James ⊕ Commander, U. S. Navy, retired, Long Beach, Calif.; born in Omaha Jan. 24, 1894; Creighton University School of Medicine, Omaha, 1918; appointed lieutenant (j. g.) in the Naval Reserve Corps in June, 1918, and appointed lieutenant (j. g.) in the U. S. Navy in December of the same year; promoted to commander in 1942; retired Jan. 1, 1946; a veteran of more than 27 years service in the Naval Medical Corps; served in the naval hospitals at Key West, Fla., Great Lakes, Ill., Newport, R. I., Chelsea, Mass., and St. Albans, N. Y., on the U.S.S. Nansemond, Pruitt, Huron, and Wright, with the Marines in Santo Domingo, D. R., and Peking, China, and at numerous other medical department facilities throughout the world; died June 12, aged 61, of hypertension and abdominal aortic aneurysm.

Flint, Austin ⊕ Venice, Fla.; born in Ballston Spa., N. Y., July 30, 1868; Bellevue Hospital Medical College, New York City, 1889; specialist certified by the American Board of Obstetrics and Gynecology; professor emeritus of obstetrics at New York University College of Medicine; professor emeritus of obstetrics at Post-Graduate Medical School of the New York University-Bellevue Medical Center; fellow of the American College of Surgeons; an associate member of the American Medical Association; on the consultant staffs of the Hospital for Special Surgery and the Woman's Hospital in New York City, Vassar Brothers Hospital in Poughkeepsie, N. Y., and the Newport (R. I.) Hospital; died in Doctors Hospital in New York City July 20, aged 86, of cerebral hemorrhage.

Malcomson, Joseph Emmett ⊕ Commander, U. S. Navy, retired, Detroit; born in Detroit in 1886; Detroit College of Medicine and Surgery, 1917; specialist certified by the American Board of Physical Medicine and Rehabilitation; member of the American Society of Physical Medicine; entered the U. S. Navy Sept. 10, 1917, and retired May 1, 1937, for incapacity resulting from an incident of the service; served during World War I with the Navy Transport Service, and during World War II executive medical officer at Great Lakes (Ill.) Training Station and later senior medical officer at Notre Dame (Ind.) University; formerly an officer in charge of recruiting in Detroit and later medical examiner at the Marine Corps Recruiting Station; died July 12, aged 68, of cerebral hemorrhage.

Scholpp, Sylvan Strong ⊕ Phoenix, Ariz.; born in Rochester, N. Y., Jan. 28, 1899; University of Chicago Medical School, 1938; interned at St. Luke's Hospital in Milwaukee, followed by a residency in Park Avenue Hospital in Rochester, N. Y.; engaged in private practice in Rochester for two years and then enlisted in the Army Medical Corps, where he served from August, 1942, to May, 1946, part of the time in Italy; discharged with the rank of major and entered the Veterans Administration for more surgical training; was with Veterans Administration Hospital in Temple, Texas, and later went to the Veterans Administration Hospital at Biloxi, Miss.; member of the American Academy of General Practice; died June 4, aged 56, of coronary occlusion.

McMenamin, Thomas Daniel ⊕ Highland Falls, N. Y.; Cornell University Medical College, New York City, 1900; an associate member of the American Medical Association; served during World War I; a member of the selective service board at Corn-

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⊕ *Indicates Member of the American Medical Association.*

wall during World War II; past-president of the Orange County Medical Society; health officer for Highland Falls, Cornwall-on-Hudson, the town of Highlands, and the Bear Mountain Interstate Park; an honorary member of the fire department of Highland Falls; member of the school board, on which he served as president; one of the organizers, for eight years chief of staff, and attending physician at the Cornwall (N. Y.) Hospital, where he died June 29, aged 77, of uremia and arteriosclerosis.

MacGuire, Daniel Philip ⊕ Staten Island, N. Y.; born in Johnstown March 22, 1879; Columbia University College of Physicians and Surgeons, New York, 1902; a medical officer during World War I; served on the faculty of his alma mater and the Post-Graduate Medical School of the New York University-Bellevue Medical Center in New York City; fellow of the American College of Surgeons; on the staff of the New York Post-Graduate Medical School and Hospital in New York City; trustee of Marymount College, Tarrytown; served on the staff of St. Vincent's Hospital, where he died July 1, aged 76, of arteriosclerosis and lobar pneumonia.

Green, David Wright ⊕ Salem, N. J.; born in Salem Aug. 31, 1891; University of Pennsylvania School of Medicine, Philadelphia, 1915; past-president of the Salem County Medical Society and the Salem County Health Association; commissioned a first lieutenant and attached to the British Army during World War I; awarded the British Military Cross by King George V "for valor displayed Sept. 27, 1918, while serving in the Medical Corps in France"; honorary chief of staff at the Salem County Memorial Hospital; fellow of the American College of Surgeons; director of the Salem National Bank and Trust Company; died July 3, aged 63, of cancer.

Myers, Dean Wentworth ⊕ Ann Arbor, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1899; in 1942 president of the Washtenaw County Medical Society; fellow and formerly on the board of governors of the American College of Surgeons; past-president of the city council; served as president of the Chamber of Commerce and the Rotary Club; from 1928 to 1931 member of the city board of education; from 1943 to 1949 councilor of the 14th district of the Michigan State Medical Society; for many years on the faculty of his alma mater; died July 2, aged 81, of bronchopneumonia.

Willits, Paul Winter ⊕ Grand Rapids, Mich.; born in Nahant, Mass., April 3, 1890; Northwestern University Medical School, Chicago, 1920; specialist certified by the American Board of Obstetrics and Gynecology; member of the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; past-president of the Kent County Medical Society; interned at the Michael Reese Hospital in Chicago; on the staff of the Blodgett Memorial Hospital, where he died June 29, aged 65, of arteriosclerosis, diabetes mellitus, cerebral thrombosis, and carcinoma of the prostate.

May, James Virgil ⊕ Marinette, Wis.; St. Louis College of Physicians and Surgeons, 1900; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; past-president of the Marinette County Medical Society; member and examining physician of the Marinette County Selective Service Board during World War I and World War II; on the staff of the St. Joseph Hospital in Menominee and Marinette General Hospital; charter member of the Marinette Rotary Club; died June 12, aged 79, of a heart attack.

Gastineau, Felix Thomas ⊕ Tulsa, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1918; member of the American Psychiatric Association; past-president of the Cleveland County Medical Society; at one time associated with the Indian Service; served as acting director of the Student Health Service at the University of Oklahoma in Norman and as physician at the Ellison Infirmary; served on the faculty of his alma mater; formerly on the staff of the Eastern State Hospital in Vinita; died June 3, aged 66, of coronary arteriosclerosis.

Bidwell, George Smith ⊕ Waterbury, Vt.; University of Vermont College of Medicine, Burlington, 1890; affiliated with the Mary Fletcher Hospital in Burlington, the Fanny Allen Hospital in Winooski, and the Heaton Hospital in Montpelier; died July 8, aged 90, of arteriosclerosis and bronchopneumonia.

Bove, Rocco, New Haven, Conn.; The General Medical College, Chicago, 1924; director of public health in East Haven; on the staff of the Grace Hospital; died June 12, aged 57, of coronary occlusion.

Brown, Berton Milton, Delray Beach, Fla.; University of Louisville (Ky.) School of Medicine, 1917; died in Madisonville, Ky., July 11, aged 67, of a heart attack.

Burbacher, Harry Ray ⊕ Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1916; also a graduate in pharmacy; vice-president of the board of trustees of Columbus Public Library; formerly trustee of the Ohio Historical Society; member of the Columbus Academy of Medicine; on the staff of the White Cross Hospital; died July 13, aged 70, of coronary occlusion and myocardial infarction.

Byrd, Edwin Samuel, Atlanta, Ga.; Atlanta Medical College, 1914; at one time on the faculty of his alma mater; on the staffs of the Grady and Georgia Baptist hospitals; died July 7, aged 62.

Campana, Vincent Ralph ⊕ Jersey City, N. J.; Hahnemann Medical College and Hospital, Philadelphia, 1932; past-president of the New Jersey Chapter of the American Academy of General Practitioners; on the affiliate staffs of Margaret Hague Maternity Hospital and the Medical Center; on the staff of St. Francis Hospital, where he died July 15, aged 48, of gastric carcinoma.

Catlett, H. D., West Monroe, La.; Louisville (Ky.) Medical College, 1891; died in St. Francis Hospital, Monroe, June 16, aged 86, of cerebral hemorrhage and arteriosclerosis.

Conway, Robert Emmett, Staten Island, N. Y.; Fordham University School of Medicine, New York City, 1915; member of the Medical Society of the State of New York; served during World War I; died in St. Vincent's Hospital July 2, aged 65.

Cock, Ernest Anderson, Oak Hill, W. Va.; Detroit College of Medicine and Surgery, 1919; member of the West Virginia State Medical Association, American Public Health Association, and the American School Health Association; health officer of Fayette County; at one time a medical missionary in Alaska and Labrador; served as health officer of Randolph and Cleburne counties in Alabama; for many years school physician in Pontiac, Mich.; died in Charlottesville, Va., July 11, aged 63, of malignant hypertension.

Corea, George Thomas, Provincetown, Mass.; Tufts College Medical School, Boston, 1918; died July 4, aged 67, of coronary thrombosis.

Crutcher, Lewis Pinkerton, Long Beach, Calif.; Dunham Medical College, Chicago, 1897; died June 24, aged 81, of uremia due to chronic nephritis.

Davis, John Thomas ⊕ Louisville, Ky.; Hospital College of Medicine, Louisville, 1907; an associate member of the American Medical Association; died June 14, aged 76.

Dehoney, Howard, Philadelphia; Jefferson Medical College of Philadelphia, 1892; died in Jefferson Hospital July 4, aged 85.

Denison, Charles Milton ⊕ Harrisburg, Pa.; University of Buffalo School of Medicine, 1911; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association; on the staff of the Harrisburg State Hospital; died June 19, aged 67, of heart disease.

Dennen, Joseph Horace, Washington, R. I.; Harvard Medical School, Boston, 1902; died in Hope Valley June 20, aged 82, of cancer.

Dewey, Fred Norton ⊕ Maumee, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; formerly practiced in Elkhart, Ind., past-president of the Elkhart County Medical Society and served as county coroner; died in the Flower Hospital, Toledo, July 8, aged 91, of arteriosclerosis.

Donovan, Roscoe P., Hoopeston, Ill.; St. Louis College of Physicians and Surgeons, 1906; died June 25, aged 70, of a heart attack.

Farrell, John Hogan, Atherton, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; died July 10, aged 72, of cerebral hemorrhage.

Feaman, Albert Cole, Seattle; University of Minnesota Medical School, Minneapolis, 1921; served during World War I; formerly affiliated with the Veterans Administration; died in the Maynard Hospital July 10, aged 65, of heart disease.

Frickman, Oscar A., Newport, Ky.; Medical College of Ohio, Cincinnati, 1896; president of the board of education from 1912 to 1918; on the staff of the Speers Memorial Hospital in Dayton, where he died June 27, aged 87, of cerebral thrombosis.

Gade, Carl Johannes ⊕ Bridgeport, Conn.; Yale University School of Medicine, New Haven, 1910; specialist certified by the American Board of Orthopaedic Surgery; member of the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; past-president of the Bridgeport Medical Society; served on the draft board during World War II; consultant and surgeon, crippled children's division of the state board of health; on the staff of St. Vincent's Hospital, where he died June 19, aged 69, of myocardial infarction.

Glatter, Zoltan ⊕ East Moline, Ill.; Magyar Királyi Pázmany Petrus Tudományegyetem Orvosi Fakultasa, Budapest, Hungary, 1923; assistant superintendent of the East Moline State Hospital; formerly on the staff of the Dixon (Ill.) State Hospital; died in White Pigeon, Mich., June 17, aged 62, of injuries received in an automobile accident.

Hamil, James Young ⊕ Decatur, Ala.; Medical College of Alabama, Birmingham, 1916; died in Birmingham April 28, aged 62, of coronary thrombosis.

Harris, Bunn ⊕ Jenks, Okla.; University of Arkansas School of Medicine, Little Rock, 1913; an associate member of the American Medical Association; served during World War I; died July 5, aged 66, of coronary insufficiency.

Hinshaw, Sylvester Ellsworth, Escondido, Calif.; Drake University College of Medicine, Des Moines, Iowa, 1912; died in Poway June 3, aged 78, of arteriosclerotic heart disease.

Hunt, Preston, Texarkana, Texas; Atlanta College of Physicians and Surgeons, 1901; fellow of the American College of Surgeons; member of the House of Delegates of the American Medical Association in 1938 and 1940; past-president of the State Medical Association of Texas and the Bowie County Medical Society; past-president of the Lions Club; on the staff of the Texarkana Hospital; died in Pampa July 10, aged 89.

Irwin, George Allan Lyall, La Jolla, Calif.; M.B., 1912, and M.D., 1921, Queen's University Faculty of Medicine, Kingston, Ontario, Canada; died in Southampton, N. Y., June 27, aged 67, of coronary occlusion.

Jackson, Walter B. ⊕ Waxahachie, Texas; College of Physicians and Surgeons, Dallas, 1907; past-president of the Ellis County Medical Society; formerly city health officer at Alvarado and also served in that capacity in Waxahachie; died June 29, aged 76, of congestive heart disease.

Jacobson, Julian C. ⊕ Santa Cruz, Calif.; University of Minnesota Medical School, Minneapolis, 1937; past-president of the Santa Cruz County Medical Association; served during World War II; on the staffs of the Santa Cruz and Sisters hospitals; died July 1, aged 49, of coronary occlusion.

Jardini, Alessandro S., Los Angeles; Regia Università di Torino Facoltà di Medicina e Chirurgia, Italy, 1902; served in the Italian Army during World War I; on the staff of the French Hospital; died July 9, aged 77, of intestinal obstruction.

Jefferies, Charles A., Gaffney, S. C.; Medical Department of Tulane University of Louisiana, New Orleans, 1890; died in the Mountain Sanitarium and Hospital in Fletcher, N. C., June 27, aged 87, of cerebral arteriosclerosis.

Kelly, Raymond Martin ⊕ Chicago; Loyola University School of Medicine, Chicago, 1916; a medical officer during World War I; served on the staff of St. Anne's Hospital, where he was first president of the hospital board; died July 15, aged 64, of rheumatic heart disease.

Knowlton, Florence Emerson Honey, Pacific Grove, Calif.; Tufts College Medical School, Boston, 1920; died July 12, aged 65.

Lampson, Edward Rutledge ⊕ Hartford, Conn.; Columbia University College of Physicians and Surgeons, New York City, 1896; member of the founders group of the American Board of Surgery; fellow of the American College of Surgeons; past-president of the Hartford County Medical Society and the Hartford Medical Society; for many years on the staff of the Hartford Hospital, where he died June 24, aged 87, of coronary thrombosis.

Lombardo, Theodore Roosevelt ⊕ Brooklyn, N. Y.; Long Island College of Medicine, Brooklyn, 1936; served during World War II; for many years on the medical staff of St. Mary's Hospital and Brooklyn College; died in St. Vincent's Hospital July 20, aged 45.

Love, Thomas Stafford ⊕ Dallas, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1920; specialist certified by the American Board of Otolaryngology; served during World War I; formerly on the faculty of Southwestern Medical School of the University of Texas; on the staffs of Baylor University Hospital, Medical Arts Hospital, Parkland Hospital, and Texas Scottish Rite Hospital for Crippled Children; died June 26, aged 59, of myocardial infarction.

Lyon, James Ira ⊕ Edmond, Okla.; Kansas City (Mo.) Medical College, 1892; past-president of the board of education; died in the Wesley Hospital, Oklahoma City, July 11, aged 85, of cerebral thrombosis.

Merkel, George Albert ⊕ Minersville, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1904; an associate member of the American Medical Association; president of the First National Bank and Home Building and Loan Association; on the staff of the Warne Hospital, Pottsville, where he died May 18, aged 73, of intestinal obstruction.

Miltenberger, Val E. ⊕ Lieutenant colonel, U. S. Army, retired, Kirksville, Mo.; St. Louis University School of Medicine, 1904; entered the U. S. Army in 1917; became a lieutenant colonel in April, 1937; retired Nov. 30, 1937; returned to active duty from February, 1943, to Jan. 31, 1945; died in Albuquerque, N. Mex., July 14, aged 74.

Osborn, Howard A., Grand Rapids, Mich.; Detroit College of Medicine, 1906; served during World War I; formerly practiced in Detroit, where he was on the staff of the Harper Hospital; for many years on the staff of the Burleson Hospital; died in the Butterworth Hospital July 19, aged 72.

Pargen, Thomas Houston, Austin, Texas; Georgetown University School of Medicine, Washington, D. C., 1926; member of the Southern Psychiatric Association and the American Psychiatric Association; served during World War II; for a time a member of the staff of Austin State School; recently served on the staff at McKnight State Sanatorium in Sanatorium; died in Brackenridge Hospital July 8, aged 52, of congestive heart disease.

Perry, Seth Bridgman, Hopewell, Va.; Medical College of Virginia, Richmond, 1914; member of the Medical Society of Virginia; for many years vice-mayor and city councilman; died June 21, aged 67, of a heart attack.

Perusse, George Louis ⊕ Chicago; Jenner Medical College, Chicago, 1908; member of the Industrial Medical Association; at one time superintendent of the Michael Reese Hospital; on the staffs of the Columbus Memorial Hospital and the Grant Hospital, where he died July 15, aged 79, of calcified aortic stenosis and arteriosclerosis.

Pond, Bernard Wesley ⊕ Newton, Mass.; Harvard Medical School, Boston, 1901; died in the Newton-Wellesley Hospital Aug. 1, aged 81, of heart disease.

Powell, Daniel Drury, Jackson, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1953; interned at the Charity Hospital of Louisiana in New Orleans; resident at the Huey P. Long Charity Hospital in Pineville, La.; died July 20, aged 28, of coronary occlusion.

Reinsch, Frank, Ashton, Iowa; Chicago College of Medicine and Surgery, 1917; at one time county coroner; served during World War I; for many years a member and president of the school board; died in Osceola (Iowa) Hospital July 5, aged 61, of cancer.

Renshaw, John B., Glendale, Calif.; Medical Department of Tulane University of Louisiana, New Orleans, 1888; died June 27, aged 88, of cancer.

Reynolds, John Andrew ⊕ Springfield, Mass.; Long Island College Hospital, Brooklyn, 1922; served on the staffs of the Wesson Memorial Hospital and the Springfield Hospital, where he died June 28, aged 62, of arteriosclerotic heart disease.

Robbins, Agnes Louise ⊕ Kansas City, Kan.; University of Kansas School of Medicine, Kansas City, 1945; interned at St. Margaret's Hospital; member of the American Academy of General Practice; on the staffs of St. Margaret's and Providence hospitals and the Bethany Hospital, where she died July 15, aged 47.

Rose, James Madison, Olive Hill, Ky.; University of Louisville Medical Department, 1909; member of the Kentucky State Medical Association; past-president of the Carter County Medical Society; served as mayor of Olive Hill, and as state senator from 1928 to 1936; president of the People's Bank of Olive Hill; member of the board of regents of Morehead (Ky.) State College; died July 5, aged 69, of a heart attack.

Rosenthal, Julius Mordecai ⊕ Monticello, N. Y.; University and Bellevue Hospital Medical College, New York City, 1906; member of the American College of Chest Physicians; an associate member of the American Medical Association; served on the board of the Monticello Hospital; died in Miami Beach, Fla., July 10, aged 77.

Ross, Floyd Freeland ⊕ Berkeley, Calif.; Howard University College of Medicine, Washington, D. C., 1927; on the staff of the Herrick Memorial Hospital; died July 6, aged 54, of heart disease.

Rowe, Mary Virginia Copeland, Marion, N. C.; Tulane University of Louisiana School of Medicine, New Orleans, 1939; member of the Medical Society of the State of North Carolina; interned at the Guilford County Sanatorium in Jamestown and the Crawford W. Long Memorial Hospital in Atlanta, Ga.; died in the Marion General Hospital May 23, aged 40, of pancreatitis and chronic cholecystitis.

Rucks, William Ward ⊕ Oklahoma City, Okla.; University of Nashville (Tenn.) Medical Department, 1897; served during World War I; member of the Association of Life Insurance Medical Directors of America; formerly medical director of the Home State Life Insurance Company; co-founder and on the staff of the Wesley Hospital, where he died July 14, aged 80, of myocardial infarction.

Saunders, Griffin Augustus ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1914; for 25 years served with the city department of health; on the staff of the Mercy-Douglas Hospital for many years; died in the Hospital of the University of Pennsylvania June 25, aged 66, of carcinoma of the tongue with metastases.

Schmidt, William Francis ⊕ Philadelphia; The General Medical College, Chicago, 1923; on the staffs of the Frankford and Episcopal hospitals; died in the Jeanes Hospital May 28, aged 71, of cerebral thrombosis.

Seely, Richard Henry ⊕ Trenton, N. J.; Jefferson Medical College of Philadelphia, 1945; specialist certified by the American Board of Ophthalmology; served during World War II; formerly a resident in ophthalmology at the Wills Hospital in Philadelphia, where he was later an associate ophthalmologist; interned at St. Francis Hospital, where he was an associate ophthalmologist, and where he died July 17, aged 34, of chronic lymphocytic leukemia.

Sickerman, Clairmont William ⊕ Indianapolis; University of Louisville (Ky.) School of Medicine, 1933; on the staff of Methodist Hospital; died June 11, aged 52, of coronary occlusion.

Sleeter, Robert William ⊕ Medford, Ore.; University of Oregon Medical School, Portland, 1937; interned at Sacramento (Calif.) County Hospital; served during World War II; died in Arco, Idaho, July 14, aged 43, of coronary occlusion.

Sostek, Samuel Bertram, Malden, Mass.; Boston University School of Medicine, 1937; member of the Massachusetts Medical Society; interned at the Jewish Hospital in Brooklyn, N. Y.; served a residency at the Boston City Hospital; certified by the National Board of Medical Examiners; specialist certified by the American Board of Internal Medicine; served during World War II; died in the Massachusetts Memorial Hospital in Boston May 1, aged 45.

Summers, James Arthur ⊕ Little Rock, Ark. (licensed in Arkansas in 1903); for 22 years health officer of Pulaski County; at one time health officer of North Little Rock; died July 7, aged 74, of myocardial infarction and cancer of the prostate.

Tompkins, Archibald, Savannah, Ga.; Meharry Medical College, Nashville, Tenn., 1911; died in the Charity Hospital June 7, aged 70, of cerebral hemorrhage, hypertension, and chronic interstitial nephritis.

Tracy, Elizabeth Roberts Cahoon, Sanford, Fla.; New York Medical College and Hospital for Women, Homeopathic, New York City, 1900; died in Deland July 23, aged 91, of hypostatic pneumonia and myocardial degeneration.

Walker, Arthur Bruce, Lincoln, Neb.; John A. Creighton Medical College, Omaha, 1906; died in St. Elizabeth Hospital July 4, aged 77, of cerebral thrombosis, hypertension, and arteriosclerosis.

Walker, John Keasbey ⊕ Haverford, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; an associate member of the American Medical Association; died in the Bryn Mawr (Pa.) Hospital June 18, aged 77, of cerebrovascular disease.

Wallingford, William H., Princeton, W. Va.; Hospital College of Medicine, Louisville, Ky., 1907; past-president of the Mercer County Medical Society; served as chief surgeon at the Princeton Hospital, which he established; died in Salem, Va., July 18, aged 75, of pneumonia and arteriosclerotic heart disease.

Watkins, Benjamin F., Jackson, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1905; died in the Veterans Administration Hospital in Atlanta May 11, aged 74, of uremia and chronic pyelonephritis.

White, Thomas Watson, Houston, Texas; University of Texas School of Medicine, Galveston, 1898; veteran of the Spanish-American War; died July 4, aged 79, of arteriosclerosis and hypertension.

Wood, Joseph Benjamin, Marietta, Ga.; University of Georgia Medical Department, Augusta, 1898; died May 29, aged 89, of pneumonia and hypertension.

Wright, Daniel Paul, Patton, Mo.; National University of Arts and Sciences Medical Department, St. Louis, 1913; died in the Southeast Missouri Hospital, Cape Girardeau, May 17, aged 76, of acute coronary occlusion.

CORRECTION

Krakowski, Joseph.—The obituary of Dr. Adam Joseph Krakowski (The Journal, July 30, 1955, page 1186), was erroneous. The physician referred to was Dr. Joseph Krakowski of Staten Island, N. Y., who graduated from the University of Poznan in Poland in 1933, was a resident physician on the staff of the Richmond Memorial Hospital, and died May 12, aged 48, of perforated duodenal ulcer.

FOREIGN LETTERS

BELGIUM

Complications of Gastrectomy.—At a meeting of the Belgian Gastroenterological Society in November, Godart and Van Lerberghe said that after gastrectomy anemia and the dumping syndrome were well known. In a series of 40 patients who had a dumping syndrome, each patient was examined with ordinary barium and with sweetened, lactated barium to induce the dumping syndrome. The authors concluded that in all patients the motor disturbances are associated with stomal incontinence and a dilatation of the jejunum. With endoscopy the development of a dilatation due to hypotonia rather than to internal hypertension is seen. The authors saw no dilatation in the jejunum on radiography, but they did see it in the ileum. Thickening of the folds, usually attributed to jejunitis, seemed to them to be caused by hypotonia of the mucosa. This concept was supported by the fact that dilatation was produced with lactated barium but not with plain barium. The ileum is hypertonic and segmented. This hypotonia followed by hypertonia determines the speed of transit, which is always rapid. Bargen explained this as follows: if peristalsis encounters a hypotonic loop, churning and arrest occur. This also explains why patients with gastrectomy rarely have diarrhea. In the dog, electric stimulation of the proximal end of the stomach causes jejunal hypotonia and ileal hypertonia. To avoid this one must section the sympathetic nerve, and not the vagus. Excitation can also explain chronic hypotonia in man.

Fight Against Poliomyelitis.—At the March meeting of the Belgian Health and Social Medicine Society, Dr. Recht pointed out that it is difficult to organize a program for the control of poliomyelitis because of the unpredictable characteristics of the epidemic and the scarcity of prodromal symptoms. In setting up such a program it was decided that four university centers with two extra centers, one at Anvers and one at Charleroi, would be better than one. The country now has 35 iron lungs, 7 thoracic cuirasses, and 14 Engström respirators. In 1950 the Inter-University Foundation for the Treatment of Virus Diseases and Poliomyelitis was created, and in 1954 the Princess Josephine Charlotte Center of Studies was started. Financial assistance for victims of poliomyelitis is provided by the Sickness-Disability Insurance and the Public Welfare Commission. Since April 10, 1952, a special fund covers treatment expenses of patients with poliomyelitis. In July, 1950, the National Radiodiffusion Institute launched a movement called the "Chain of Happiness." These funds go for the help of children with poliomyelitis over a period of several years, either by paying for their treatment or helping to buy prostheses. In 1943 the National Defense League Against Poliomyelitis was started to coordinate research and direct aid to patients.

Antipoliomyelitic Antibodies.—At a meeting of the Royal Academy of Medicine in 1954, Quersin-Thiry and Dekegel stated that 42% of the children under 10 in Belgium have antibodies against the three types of poliomyelitis virus and 90% of them have antibodies against at least one type. After the age of 10, immunization proceeds slowly and the situation is hardly changed up to the late 20's. Thus, between 10 and 17% of persons under 30 have no immunity to any type of poliomyelitis virus. There is little difference between the types of virus regarding the frequency with which persons become immunized, but the three types are not equal with respect to the intensity of this immunization. Among persons with antibodies against type 3 virus, 60% have an elevated serum titer, while such a titer is found in only 22% of those immunized against type 2 and in 33% of those with anti-type 1 antibodies. The antibody titer is generally less in persons aged from 5 to 29 years than in adults or children under 5, except for those of less than 6 months, in whom it is very low.

BRAZIL

Carcinoma of the Liver.—In the *Annals of the Medical School of Recife,* Dr. Adonis Carvalho reviewed 2,797 autopsies performed at the department of pathology of the University of Recife and concluded that the incidence of primary carcinoma of the liver was 0.57% or similar to that found in the United States and Europe. There appears to have been no increase in the incidence of this disease in the last 10 years. The incidence was greatest in the age group of 40 to 49 years, which suggests that the onset of the disease is earlier here than in other countries. The ratio of men to women affected was 4:1. The relation of hepatic cancer to cancers in other parts of the body is a little higher here than in the United States and Europe and lower than in Africa. The incidence of this disease in persons with hepatic cirrhosis is greater than in persons without hepatic cirrhosis. No relation was found between schistosomiasis and primary carcinoma of the liver. Liver cell carcinoma is almost four times as frequent as bile duct carcinoma. Hepatomegaly and splenomegaly are almost always present in patients with hepatic cancer. The starting point is often the right lobe, but intrahepatic metastasis occurred in practically every case. The extrahepatic metastases were found most often in the lungs and the spleen.

Postoperative Care.—Dr. Fernando Paulino reported in *Revista Brasileira de Cirurgia* (vol. 29, April, 1955) a series of 200 patients subjected to major operations, mostly in the upper gastrointestinal tract, to whom postoperatively he gave intravenous infusions of dextrose, amino acids, alcohol, electrolytes, and vitamins. More than 1,600 liters of this solution were injected, and no undesirable reactions were observed. The solution provides about 1,000 calories per liter. Thus, sufficient calories can be given without overhydration of the patient. The intravenous use of alcohol did not interfere with the patient's water, sodium, and potassium balance or with the nonprotein nitrogen level, and positive nitrogen balance was maintained by parenteral administration of therapy alone. Urinary excretion of glucose seldom occurred, and when it did occur it was corrected by reducing the speed of the injection. The author concluded that positive nitrogen balance is a definite aid to the recovery of patients subjected to major operations.

ENGLAND

Comet Aircraft Disaster Autopsies.—A report by Stewart and Whittingham (*Lancet* 1:1136, 1955) of the postmortem findings in the bodies recovered after the two Comet aircraft disasters over the Mediterranean Sea in 1954 includes the findings of the experimental work carried out on animals as an aid in interpreting the cause of death of the victims of the crashes. At the time of the disasters, both Comets had reached an altitude of about 30,000 ft. during the initial climb. At this height the air pressure inside the cabin is about 7.5 lb. per square inch above that prevailing outside. All but 5 of the 19 bodies examined had antemortem fractures of the skull, and 15 had similar injuries of the thoracic cage, mostly of exceptional severity. Spinal fractures and costovertebral dislocations were common. Limb fractures, found in 13 bodies, were predominantly sustained post mortem. Grave internal injuries were present in all the bodies, even in those with little external injury. Thus, hemothorax, of 0.3 to 2 liters, was present in 13, and the lungs were severely damaged in all cases. In no case was there evidence of drowning. Hemoperitoneum (up to 1 liter) was present in 14 and hepatic laceration in all cases. Tears of the spleen were found in only five and severe injury to the lungs was found in all cases. Macroscopically lung injury consisted of congestion, bruising, laceration, pulping, and areas of ballooning, with subpleural bullae. Microscopically the findings were traumatic

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The items in these letters are contributed by regular correspondents in the various foreign countries.

emphysema, hemorrhage, vascular engorgement, and fat embolism. From an analysis of the autopsy findings, it was concluded that in all probability the pulmonary lesions were not caused by an explosion, the reasons being: (1) in none of the bodies recovered (including that of a child aged 10 years) did the subpleural hemorrhages show a pattern of rib markings; (2) the lungs of all had much the same appearance, whereas in explosion, a significant variation in the degree of injury might be expected, people seated near the source being most severely affected; (3) in no case was blood or froth present in the nose, mouth, or elsewhere in the upper respiratory passages; (4) none of the bodies had skin lesions attributable to peppering with metallic fragments or other missiles; and (5) none had burns such as are caused by naked flame. Also, there was no evidence of a bomb explosion or of any fire inside the cabin of the aircraft.

An interesting difference between the bodies recovered from the two disasters was noted in the skin. In the bodies recovered from the Elba crash the skin lesions, called "burns" for convenience, showed histological evidence of tissue destruction and affected predominantly clothed areas; however, no evidence of exposure to flame or searing temperatures was seen. In the bodies recovered from the Naples crash the skin lesions, called "darkening" for convenience, involved exposed skin only, and again, there was no evidence of exposure to flame or searing temperatures. It was concluded that the Elba bodies were subjected to postmortem scalding of the skin as a result of fire starting after they had fallen into an area covered by a kerosene film. The Naples bodies showed no scalds but instead a postmortem darkening of the pigment (the Meirowsky phenomenon) as the result of exposure to bright sunlight.

The final reconstruction of the course of events from the medical evidence is that the injuries were inflicted in three distinct phases: in the aircraft, on impact with the sea, and while the bodies were floating in the water. The head injuries, certain abrasions, and at least some fractures of the thoracic cage were acquired in the aircraft as a result of an extremely violent upward and forward displacement of the seated occupants as a result of sudden cabin failure. This would be sufficient to cause death. As the aircraft disintegrated, all or most of the passengers were ejected and fell into the sea. All the available evidence indicates that forces generated by impact with a water surface after such a fall must cause grave injury to the internal organs. The nature of the internal injuries in the bodies recovered, including the pulmonary lesions, is consistent with their having been caused for the most part in this way. Other injuries probably received at the same time include fractures of the limbs and spine and further damage to the thoracic cage. The injuries received while floating in the sea have already been described.

Mental Hospitals.—The King Edward's Hospital fund for London has issued a report on the 27 mental hospitals, with 46,000 beds, and the 9 mental deficiency hospitals, with 14,000 beds, in the area covered by the fund. The average age of these hospitals is said to be well over 50 years, and most of them date from the time when the mentally ill were looked on primarily as potential dangers to the community. In some hospitals the patients' clothes are still rolled into bundles and tied to their beds at night, since no storage space is provided for them. Overcrowding occurs to a degree unknown in other hospitals because a mental hospital cannot refuse to admit a certified patient even if there is literally no bed and the patient has to lie on a mattress on the floor. The position with regard to nursing staff is equally unsatisfactory. The Nightingale conception of the matron as mistress of the homestead and responsible to the governing body, not only for the nursing care of the patients but also for all domestic matters affecting the well-being of patients and staff, does not appear to have been accepted in the mental hospitals as it has in all other hospitals. A committee appointed to advise the Birmingham Regional Hospital Board on the standards of staffing required in mental hospitals has recommended that the average ratio of total nursing staff to patients should be 1:4. In England and Wales at present the ratio does not reach 1:6 patients. The number of student nurses in all mental and mental deficiency hospitals has fallen by more than 25% since 1948, giving the ratio of one student nurse to 42.5 patients as compared with one to 3.1 patients in general hospitals.

It is estimated that about $1,540,000 would be needed merely to put in modern catering facilities in the mental hospitals in the fund's area. It is further estimated that to bring the standard of the diet in these hospitals up to that of the regular diet in general hospitals, an increased expenditure of 70 cents per head per week would be required. The King Edward's Hospital Fund for London, which was founded over 50 years ago for the benefit of the voluntary hospitals of London, is aware of the needs of the mental patients in the area which it serves. In the last six years, grants of about $378,000 have been made. The council of the fund, however, has decided to make an allocation to the mental and mental deficiency hospitals of not less than $700,000, spread over three years. Of this sum, it is proposed to earmark $280,000 for three major schemes. The first of these is the establishment of an occupational center at one hospital, which will provide much more than occupational therapy in the restricted sense in which the term is usually understood. Its aim is not only to treat the patient at the more acute stage of his illness but also to prepare him thoroughly for his return to the community; the second is the establishment of a social center at Warlingham Park Hospital; and the third is the establishment of a community center and day hospital in connection with the psychiatric outpatient department of a general hospital on the outskirts of London. The aim of this venture is, so far as possible, to retain the mentally disturbed patient out of a hospital and in his own community.

Employment of Epileptics.—The total number of epileptics on the register of disabled persons is 16,267, or nearly 2% of the total register, according to Sir Godfrey Ince, permanent secretary, Ministry of Labor and National Service, in a speech at the annual meeting of the British Epilepsy Association. This is an increase of 1,189 in the last five years. Of the total on the register, 1,670 are unemployed, a decrease of 103 in five years. The disappointingly small decrease is due in part to the fact that most of the new registrants were unemployed. On the other hand the number of severely disabled unemployed, that is, those requiring sheltered employment, has decreased by 43. This is attributed, in part at least, to the work that has been done in providing sheltered employment by Remploy Ltd., the organization that is providing work in special factories for the severely disabled. Over 400 epileptics are employed by the company, and this represents 7% of their total of severely disabled employees. They find that epileptics on the whole make satisfactory employees. In addition, about 300 epileptics enter the Ministry of Labor's industrial rehabilitation units every year. In these units they spend an average of eight weeks on a course that is aimed at giving them a general toning up, while assessment of their capabilities for employment is made. Of the 300, about 50 leave without completing the course, mainly on health grounds, and of the remaining 250, over 80% are placed in employment or training. In a recent survey of the progress of 7,000 disabled men and women leaving these units, it was shown that, as against an average of 80% for all disabilities, only 56% of epileptics reported satisfactory resettlement six months after they had entered employment. It is the universal experience in the industrial rehabilitation units that, handled with understanding, the epileptic readily settles down to work and can acquit himself as well as the best. Once he realizes that a seizure is not going to cause consternation to anyone, a steady improvement sets in, and the frequency and duration of the seizures diminish. With many, the seizures disappear entirely.

Midwife in the Maternity Service.—In the revised version of its "Memorandum of Policy," published by the Royal College of Midwives, the view is expressed that the routine antenatal care of the expectant mother should be recognized as the duty of the midwife in association with the physician who is responsible for general medical care and attendance. Many physicians are now undertaking antenatal care in their own offices, but this does not absolve the domiciliary midwife from taking her full share of responsibility during the antenatal period. In hospital practice, where obstetricians attend every antenatal clinic, it is considered essential that there be antenatal sessions conducted by midwives. Classes for the mothers in antenatal clinics should be organized by the midwife in cooperation with other members of the health team. The midwife herself should give the teaching on the physiology of labor and the preparations for it, the use of inhalational analgesics, the preparations for the baby, and breast feeding. Provided that she has had the appropriate experience, the midwife may and often does give instruction on relaxation and antenatal exercises to small groups of mothers. Assessment of the suitability of the home conditions for confinement should be made by the midwife in consultation, where necessary, with the patient's family physician. Every mother should be under the constant care of a midwife during the whole course of her labor. Although a physician may be present for part of the time, the midwife should continue to take full responsibility for most normal deliveries. As she can administer inhalational analgesics and, under the Dangerous Drugs Act, can give certain pain-relieving drugs, it is within her power, and it is her duty, to give the mother adequate relief from pain during labor. During the postnatal period the mother and baby should be looked after by the same team as cared for them during pregnancy and labor. The college deplores the practice of some hospitals of sending the mother and baby home, or to other premises, within a few days of confinement, since this makes it impossible to give continuity of care. The care of mothers and babies should remain the responsibility of midwives for at least 28 days. The college also believes that premature babies should be nursed by midwives.

Drugs for Private Patients.—At the recent annual representative meeting of the British Medical Association a motion that private patients have an equal right to free medicine was unanimously carried. This is one of the most keenly debated questions at present. Most physicians are in favor of it, but the Minister of Health has consistently refused to approve this measure. Hitherto, one of his arguments has been that such a concession could not be made without controls equivalent to those accepted by physicians under the National Health Service and that he had been advised that private physicians were not prepared to accept such controls. This last statement is denied by the profession. In the discussion it was reported that the Bristol Local Medical Committee had sent out a questionnaire on this point to 253 practitioners in the area. Of 240 replies, only 3 expressed unwillingness to accept such conditions. One speaker pointed out that it was far from true that the private patients were the wealthier members of the community. Some of the wealthiest patients use the service, while some of the most impecunious have elected to remain private patients. Private patients are classified as those who (1) were too old for insurance contributions in 1948 and who, as a class, are dying out; (2) preferred on principle to pay for their physician's services; and (3) were accustomed to consulting their physicians in private and who believed that it would be unfair to call on a state-employed physician to attend them in this way. If all the remaining private patients decided to put themselves on the lists of National Health Service physicians and were accepted, the government would have to pay a capitation fee for each one of them and provide all the drugs needed. The refusal of the government to accede to the request for free drugs was described as stupid and unjust. Strong exception was also taken to the statement of the committee presided over by Sir Henry Cohen, a former president of the association, that the granting of this concession to private patients would introduce a double standard of practice into private practice. What evidence, it was asked, was there that general practitioners were less considerate of their National Health Service patients than of their private patients?

Commonwealth Tuberculosis Conference.—One of the highlights of the fourth Commonwealth Health and Tuberculosis Conference, organized by the National Association for the Prevention of Tuberculosis and held in London in June, was the presentation of the Sir Robert Philip medal to Dr. P. V. Benjamin, technical adviser on tuberculosis to the government of India, and president-elect of the International Union Against Tuberculosis. The presentation was made by the Duchess of Kent. This is the first award of the medal, which is being given in honor of Sir Robert Philip, the founder of the first tuberculosis dispensary. One of the papers read at the meeting reported the preliminary findings of a combination of thiosemicarbazone and isoniazid. It is claimed that in the experimental animal the new drug is active against the tubercle bacillus, is nontoxic, and so far has produced no drug-resistant organisms. The results of a small clinical trial were encouraging enough to justify a more extensive trial. In another paper Dr. R. G. Cochrane deprecated some of the more optimistic claims being made for chemotherapy and BCG vaccination in the control of leprosy. He noted that relapses were being reported 15 years after sulfones had produced "clinical cures."

Question of Medical Etiquette.—During the recent railway strike a part-time consultant to the board of governors of the United Birmingham Hospitals sent the following letter to one of the strikers: "I am afraid that my principles prevent me from seeing patients on strike except in cases of emergency. Do you mind postponing the visit with your wife? If you will phone for an appointment when the strike is over I will try to fix a convenient date." The striker's member of Parliament, a member of the socialist opposition, raised the matter in the House of Commons and asked the Minister of Health whether the attitude of the physician was not completely unethical and whether this was not political discrimination. In reply the Minister of Health said that if there was any question of a breach of contract within the service, then, that was a matter for which he was answerable and which he would be glad to answer. The question of medical etiquette was not for him to decide nor was the matter of the private arrangements a physician might wish to make with his private patients.

Model Child Welfare Center.—On May 26, the Province of Natal Center of the London University Institute of Child Health was opened. The cost of the center was met by a gift of $336,000 from the people of Natal. This sum represents the balance of the "Salute to Britain Fund," which Natal collected as a gesture of sympathy for Britain during World War II. The center, which is adjacent to the Hospital for Sick Children on Great Ormond Street, is intended as a model welfare center and includes provision for child guidance, consultant and minor ailment clinics for school children, and dental clinics. It will be used by the London County Council as one of its maternity and child welfare centers. A house committee, with representatives of the London County Council, the two borough councils from which most of the children will be drawn, and the Institute of Child Health, will control general policy. The London County Council has undertaken to defray 90% of the cost of maintenance and all the salaries of the medical and nursing staff.

De-Ists.—In an editorial note in *Transactions of the Royal Society of Tropical Medicine* (49:288, 1955), Sir William MacArthur explains that the terms "delouse" and "deflea" are banned in this publication because they are unnatural monsters with Latin heads and English bodies and because native words for these operations—namely "louse" and "flea"—have been used in classical English for centuries and have the advantage of being shorter than their unscholarly substitutes. He concludes his note thus: "Rooms are dusted; gardens, weeded; plants, snailed; trees, barked; grain, husked; elbows, skinned; teeth, scaled; nuts, shelled; potatoes, peeled; gooseberries, topped and tailed; fish and houses, gutted; dogs, wormed; and a poor bird, victim of a half-missed shot, may be feathered." The superfluous Latin "de" would be no more out of place in these English words than it is in those others specifically mentioned. There is no need for the de-ists to out-Latin the Latinists—the verb *pediculare* (not de-pediculare) meant: to free from pediculi.

Perambulating Patient.—In his annual report for 1954-1955, the chairman of the Chester Executive Council reports that for the first time since the inauguration of the National Health Service, the Allocation Committee had to be called. A patient had applied for inclusion in the list of a physician who was not prepared to take him. It was reported that in the last three years this person had been included on nearly every physician's list (about 44) in Chester and that the few remaining physicians in Chester who had not given him treatment were not prepared to accept him as a patient. The Allocation Committee is set up under a scheme that provides that where a patient is unable to secure acceptance by a physician, the committee can assign him to the list of a practitioner of their choice. Fortunately, one of the medical members of the committee was willing to undertake the medical care of this person, but, within a few days of his being assigned to this physician's list, the committee was notified that the patient had moved to another area.

Cause of Itching.—An annotation in the *British Medical Journal* for June 11, 1955, says that, since it was found that a substance indistinguishable from histamine existed in a combined form in human skin, that histamine was liberated when the skin was damaged, and that histamine pricked into the skin caused itching, the view has been widely held that itching of the skin is due to the release of histamine. The view gained support from the observation that antihistamines relieved the itch of urticaria. Two years ago Broadbent published an account of work with cowhage (Mucuna pruriens), sometimes sold as itching powder, and believed at that time to cause itching mechanically. He concluded, however, that cowhage caused a liberation of histamine in the skin, as nettle stings have been shown to do, although it did not contain histamine. He based his conclusion on the observations that extracts of cowhage produced a triple response (like histamine) when injected intradermally, that when cowhage was first extracted the material left behind caused little itching, and that an antihistamine substance given orally reduced the itching caused by cowhage. Subsequently, Bowden and his co-workers showed that a crude extract of the trichomes of cowhage contains 5-hydroxytryptamine. They believe that this substance probably accounts for the pain that occurs when cowhage is applied to the skin, although they could not say whether it was responsible for the itching. More recently Arthur and Shelley claimed that the active principle in cowhage that causes itching is an enzyme called mucunain, and they have described the results of testing a series of enzymes for their power to produce itching. They used the trichomes of cowhage to introduce these enzymes into the skin, after first destroying the mucunain by autoclaving at 250 C for 30 minutes. They then soaked the trichomes in the enzyme solutions, which ranged in strength from 10% downwards. They found that when they introduced a single impregnated trichome into the skin, using a watchmaker's forceps and working under a microscope, a localized itch resulted that was "mild to intense." They tried a wide variety of enzymes finding that only proteinases were active, and of these only the endopeptidases, with activities in the physiological *p*H range. Thus, among the active ones were papain, trypsin, and chymotrypsin, while pepsin and many others were inactive. The three active enzymes were studied as crystalline preparations. They caused itching, with the shortest latent period five seconds and the longest duration 30 minutes. Arthur and Shelley believe that these enzymes cause itching by liberating another substance, but they believe that this is not histamine. Their reason for this is that the active endopeptidases invariably elicited the pure sensation of intense itching without any wheal or flare, whereas histamine and the potent histamine liberator 48/80 never produced itching in the absence of a wheal.

Retrolental Fibroplasia.—A report from the Ministry of Health (*Brit. M. J.* **2**:83, 1955) based on a series of 6,926 infants whose birth weight was not more than 2,000 gm. and who had survived at least two months indicates that 127 of these infants, or 1.8%, had retrolental fibroplasia. There was a marked fall in incidence with increasing birth weight: from 15.3% in infants whose birth weight was under 1,000 gm. to 0.2% in infants with a birth weight between 1,750 and 2,000 gm. All of the infants with retrolental fibroplasia were born in a hospital or were transferred to a hospital within two months. Another report from the Medical Research Council appears in the same issue and is based on a series of 1,095 infants with a birth weight of 1,800 gm. or less, surviving for at least two months and admitted to 17 premature baby units. Of these, 84, or 7.7%, showed evidence of retinopathy; in 39 of these there was a subsequent return to normal fundi. There were 115 babies whose mothers had a history of bleeding during pregnancy, and in this group 17 babies, or 14.8%, were affected with retinopathy. In the 976 whose mothers had no bleeding during pregnancy, there were 67 babies, or 6.9%, with a retinopathy. This difference is statistically significant. Boys were more often affected than girls; the main reason for this appeared to be that they are more immature than girls for a given birth weight. Of the 344 babies who were not given oxygen (mainly the heavier babies), none developed a retinopathy. Of the 581 babies who were given oxygen for less than five days, only 2 were affected (one permanently). There was a steeply rising incidence with increasing length of oxygen administration.

Hospital Survey in Scotland.—The latest survey of regional hospital services published by the Nuffield Foundation concerns the county and city of Perth, which, excluding mental hospitals, controls 1,385 beds, or 10.2 beds per 1,000 population. This is one of the largest groups in Scotland, both in terms of beds and number of hospitals, controlled by one board of management. It provides a wide variety of hospital beds for general practitioners and specialists and is self-supporting, except for facilities for highly specialized branches such as thoracic surgery and neurosurgery, which are organized on a regional and national basis. Of the 1,385 hospital beds in the group, 221 are beds used by patients of general practitioners: 15 beds are for obstetric cases, 108 beds are for general cases, and 98 beds are for geriatric cases. The unclassified beds used by general practitioners are maintained in six cottage hospitals in smaller centers of population.

Euthanasia Again.—Earlier this year the chairman of the South Warwickshire Mental Health Committee, in testifying before the Royal Commission on the law relating to mental illness and mental deficiency, advocated euthanasia in certain cases of gross mental deficiency in children. This evoked a controversy, but, when he spoke on the same subject at the first convention of the National Society for Mentally Handicapped Children recently, his plea was received with applause. Many of the 10,000 members of the society are parents of such children. The chairman believes that there should be a euthanasia panel to which parents of mentally defective children could turn for expert advice on the subject and that the panel, in conjunction with the request of the parents—not the panel alone or the parents alone—should take appropriate action after a decision had been made. He further believes the people of this country do not want to inflict cruelty on anybody; they want to help.

Postgraduate Jubilee.—Hammersmith Hospital, the home of the Postgraduate Medical School of London, is celebrating its 50th anniversary and has been honored by a visit from the Queen. The hospital, at the time it was built, represented a great advance over the Poor Law hospitals and institutions—so much so that the press dubbed it the "paupers paradise." In spite of severe bomb damage the hospital kept going throughout World War II, and in 1945 it underwent great expansion. The number of students enrolled in 1945-1946 was 913, but, by 1953-1954, the number had settled to a more satisfactory level—480. These students are all undergoing residency training or are specialists attending refresher courses. In addition to its other activities, the hospital now houses the Medical Research Council's Radiotherapeutic Research Unit, which includes an 8 million volt linear accelerator and a 45 in. medical cyclotron.

Crash Helmets.—The British Medical Association rejected a motion that the wearing of crash helmets by motorcyclists be made compulsory. Motorcyclists are the major contributors to road accidents, and head injuries account for more than 90% of road fatalities. The act relating to industrial injuries includes a clause exempting miners' and quarrymen's crash helmets from purchase tax but, for some unknown reason, the Treasury has not included helmets for motorcyclists in this category. In 1952, only 2% of motorcyclists wore protective helmets, compared with 30% in 1955. In the 15 months ending March, 1955, of all motorcyclists involved in accidents in London, 18.28% wore crash helmets and in northeastern Scotland 5.17%.

Sterilizing the Intestine.—In the *British Medical Journal* of May 28, 1955, B. J. Fowler reports three deaths following almost complete preoperative sterilization of the feces with antibiotics. Micrococci (staphylococci) are often the only or the predominant organisms subsequently isolated after such a sterilization, and these micrococci are found to be resistant to the drug that has been used in preoperative medication. Although oxytetracycline has often been singled out as the cause of postoperative enterocolitis, this syndrome is no respecter of antibiotics, and Fowler's cases show that the combination of penicillin and streptomycin can be just as dangerous. Fowler believes that the use of intestinal sterilization has gone too far, and he recommends the use of the poorly absorbed sulfonamides. The part played by the Micrococcus in the syndrome is still uncertain. The Micrococcus is not always the cause, and bacteriological investigations are often not done or are done too late. It is likely, however, that where the Micrococcus fills the "bacteriological vacuum" produced by overefficient sterilization of the intestine, the strain that multiplies in the intestine is one that is already drug-resistant when it has reached the victim's alimentary tract. Some lives have been saved by the prompt administration of erythromycin, often the only drug to which these micrococci will respond, but in many patients both specific and general methods of treatment fail, since the condition is acute and fulminating. The liberal use of vitamins may help to prevent this condition, since vitamin deficiency may play a part in its development; however, convincing evidence of this is lacking, and for the present it seems wiser to rely on smaller doses of antibiotics or to return to the use of sulfonamides and energetic measures to eliminate micrococcic infection from surgical wards.

Business Session of British Medical Association.—Physicians attending the annual meeting of the British Medical Association in London passed a motion urging that National Health Service checks be paid monthly rather than quarterly because their own creditors demanded monthly payments. In Newcastle there had been a monthly payment scheme for two years, and the participants were well satisfied. For an individual physician to have to apply for monthly payment was like an admission of hardship before his own colleagues. Dr. A. Talbot Rogers, chairman of the General Medical Services Committee, reminded the meeting that monthly payments would add to the administrative work, the number of employees, and the cost of the service and that any physician could say he wished to be paid monthly without proving hardship.

Family physicians who complained of exclusion from hospital work since the National Health Service started were supported by a hospital consultant, Mr. A. Dickson Wright, who said: "General practitioners who are keen to work in hospitals should have no barriers put in their way. I hate to see this carving up of the profession into two parts by Ministerial edicts."

The meeting decided to press for immediate payment of the compensation promised by the government when the right to sell and buy good will in practices was abolished. The original amount was 185 million dollars; 62 million dollars has already been paid out to retiring physicians and dependents of those who have died. Dr. A. McGlashan, Manchester, pointed out that if he had been able to invest $280 of his compensation in shares, it would now have been worth from $910 to $1,036. Instead, the value of money had dropped and, when paid, the $280 would be worth much less than when the compensation was fixed in 1948.

Mental Defectives.—The Royal Commission on the Law Relating to Mental Illness and Mental Deficiency, sitting in London, heard evidence by the Medical Practitioners' Union, which includes about 4,000 general practitioners, to the effect that instruction of the medical student in the problem of mental deficiency was inadequate. The union said that more time should be devoted in the undergraduate curriculum to practical instruction and field visits. Evidence already presented to the commission by the Ministry of Health and Board of Control, showed that in 1952 the number of mental defectives under care inside and outside of institutions was only 141,607. This figure represents a minority of the mental defectives in Great Britain. One estimate put the total number of mental defectives at 500,000. It follows that over 350,000 are not under official care. Further research and more accurate and comprehensive surveys are needed. The memorandum also stated that it is extremely difficult to institutionalize a mental defective without certification. Many parents object to certification because of the associated life-long stigma. They undertake the care of the child themselves, but complications often arise, especially with boys in early adolescence. Without adequate training the defective then becomes much less manageable. Friction frequently arises between husband and wife, accentuating domestic difficulties. At that stage parents often demand that the child be admitted to an institution. Much trouble can be avoided if treatment in an institution is for the most part voluntary and if there are sufficient places available for admission at an early age.

Boarding Out Older People.—Over three years ago the Exeter Council of Social Service introduced a scheme for boarding out older people. A report on the working of the scheme states that 55 older persons have been boarded out. Of these, 8 have died; 6 have been transferred to welfare homes or hospitals; in 16 the results have been unsuccessful; and 25 have been successfully boarded. So far as practicable, the offers of people willing to accept such boarders into their homes have been carefully checked before recommending an applicant to that home. The final arrangement, though facilitated by the Council of Social Service, has always been between the person and the family with which he is to reside. The offers from prospective adopters in response to newspaper advertisements far exceeds the number of older persons.

Doctor's Mail.—The advertising methods of the pharmaceutical industry has caused irritation and inconvenience to many physicians, most of whom throw postal advertisements into the wastebasket. The advertisements in medical journals provide most of the necessary information and, if a physician requires further information, he may telephone or write to the firm concerned. Some physicians also receive many visits from salesmen, resulting in much waste of time. One constructive suggestion, which has been under consideration by the pharmaceutical industry for some time, is that it would be advantageous to have pharmaceutical advertisements issued in a standard form that could be filed for easy reference. The British Medical Association has taken no official action in this matter.

Ambulance Radiotelephony.—Radiotelephony is being used increasingly by local authorities throughout the country in the control of their ambulance fleets. As there are few points more than 2 miles from an ambulance station in London, the method is not likely to effect much economy. On the other hand, in wartime, civil defense plans would be almost dependent on radiotelephony. As an experiment, therefore, the health committee proposes to equip six ambulances and a staff car for two-way radio transmission, to adapt three more ambulances as reserves, and to establish a control set at headquarters, which would be connected by land lines with a main transmitter on the outskirts of the county.

Royal Society of Medicine.—On June 7 at a banquet to celebrate the 150th anniversary of the founding of the Royal Society of Medicine, the Duke of Edinburgh was admitted as an honorary fellow of the society. In proposing the health of the society the Duke stated his belief that the whole essence of medicine lay in the personal relationship between physician and patient. He was prepared to put up with all the disadvantages and perils of the age—strikes and the threat of the hydrogen bomb—if he could be looked after by "the kind and brilliant men" around him.

Medical Honors.—The members of the medical profession whose names appear in the Queen's Birthday Honors List are: Geoffrey Keynes, consulting surgeon, St. Bartholomew's Hospital, who received a knighthood; Dr. A. R. S. Vickers, the Australian "flying" doctor, who was made a Companion of the Order of St. Michael and St. George; and Dr. Roger Bannister, the Olympic mile runner, who was made a Companion of the Order of the British Empire for services to amateur athletics.

FRANCE

Psychogenic Origin of Psoriasis.—At a meeting of the Society of Paris Hospitals in March, Bolgert and Soulé reported that 50% of their series of 200 patients with psoriasis had such evidence of psychasthenia as anxiety and emotional instability (confirmed by the Rorschach test). They had had depressive crises without obsessional phenomena. In 16% pure agitation without any depressive syndrome was observed; 30% showed no emotional abnormality. In 48% an intimate chronological relation was established between the appearance of the skin lesions and a specific emotional upset. A study of the background in 15 subjects from 3 to 5 years old revealed two patients with obsession and five with anxiety. Familial conflicts such as serious misunderstanding between the patients' parents always acted as the precipitating causes. In the 84 patients in whom heredity factors could be determined, the basis in 37 proved hereditary. The authors believe that a specific neurocrine secretion acts as a link between psychological trauma and the cutaneous lesion. Certain persons appear to be more prone than others to produce such substances. The authors have observed that a pregnancy that is desired can cure a psoriasis that would otherwise have grown worse. Small doses of such sedatives as atropine and eserine benefit some patients. The best results, however, are obtained with psychotherapy and by obtaining the understanding cooperation of the person responsible for the conflictual situation.

Death of Dr. Leclerc.—Dr. Henri Leclerc, the phytotherapist, died at the age of 85 years. He wrote the "Precis of Phytotherapy" and was the creator and the director of the *Review of Phytotherapy.*

SWEDEN

Treatment of Acute Alcoholism.—Dr. Gustaf Myhrman in *Svenska Läkartidningen* for June 10 advocates admitting persons suffering from acute alcoholism to the medical side of a general hospital on the same footing as persons suffering from any other acute ailment. He treated about 100 such patients in this way in 1944. To qualify for this treatment, the mental state of these patients had to be such that they could share treatment with other patients. This meant the exclusion of noisy and violent alcoholics. This disqualification was remarkably rare, and the most common type of patient was characterized by depression, restlessness, and insomnia. Such patients were treated during the first few days by rest, suitable sedatives, and hypnotics. Preparation of vitamin B were also given, and as a rule the patients improved quickly. After a few days they were encouraged to discuss their problems and to regard alcoholism as a disease rather than as a blameworthy character defect. Disulfiram treatment was started, and its mode of action was explained, facilities being provided for a practical demonstration with alcohol tests devised to convince the patient himself of the reactions provoked. As a rule, these patients could be discharged after about eight days. Myhrman states that the more he has practiced this mode of treatment, the more he has been encouraged to follow it. At first he had found his hospital staff inclined to regard alcoholics only as fitting subjects for police attention and institutes specially devised for them, but this negative attitude soon gave place to keen appreciation of the merits of his policy and wholehearted cooperation from all his subordinates. In his opinion alcoholism has become so widespread in Sweden and of such great social importance that it ranks with tuberculosis, cancer, and rheumatism as a national scourge.

Alcohol Consumption.—G. Nelker in *Svenska Läkartidningen* for June 24 reports on the consumption of alcohol in a representative sample of the population of Sweden. About 60% of the persons between the ages of 19 and 26 years in this survey were personally interviewed. About 2,000 heavy drinkers of the same age were also interviewed, and the Swedish Gallup Institute undertook the interviewing of about 5,000 persons of all ages with regard to their drinking habits. About 7% of the men between the ages of 20 and 25 and 9% of those over this age had a record of contravention of the alcohol laws in the preceding 10 years. This means that about 195,000 men over the age of 15 fell foul of the law, in most cases on account of drunkenness. This was classified as gross in 47,000 men and as less serious in the rest. As there were only about 4,000 women in the same category, there was only one woman convicted of the abuse of alcohol to every 50 men. This striking sex difference is characteristic of a spirits-drinking country, as distinguished from wine and beer-drinking countries in which women are more noticeably affected. About 80% of the men consumed alcohol to a moderate or very slight extent. The rest could be almost equally divided between heavy drinkers and teetotalers. For women it could be said that a third consumed spirits regularly, another third did so occasionally, and the remaining third were teetotalers. The author concludes that the liquor problem is more serious for the youth of today than it was for earlier generations.

Recession of Tuberculosis.—Dr. Enar Brandel, in *Svenska Läkartidningen* for July 1, notes that Norrbotten County in the north of Sweden has had such a bad name in the past with regard to tuberculosis that its dramatic decline since 1944 is the more cheering. In 1944 there were 242 deaths from tuberculosis, or 107 per 100,000 inhabitants; in 1954 there were only 41 such deaths, or 16 per 100,000. Deaths from tuberculosis in patients under the age of 30 fell from 130 in 1944 to 5 in 1954. In 1954 there was only one death from tuberculosis in childhood, while the corresponding figure for 1944 was 14. There has also been a marked fall in the number of patients registered by the Central Tuberculosis Dispensary as suffering from tuberculosis, the numbers for the two years in question being 6,476 and 3,637 respectively. The credit for the improvement must be given to a combination of mass radiography, BCG vaccination, antibiotic and chemotherapeutic remedies, the progress of chest surgery, the raised standard of living, and increased natural resistance to tuberculosis as demonstrated by the more chronic course it now runs.

Rickets.—In *Nordisk medicin* for June 2, Dr. Jan Winberg reports a survey of most of the children's hospitals in Sweden with regard to the number of patients with active rickets treated by them during the period 1944 to 1953. The diagnosis in most of the 2,530 cases thus collected was confirmed by roentgenograms and chemical analyses of the blood. In 1944, 1.55% of the children treated in the hospital suffered from rickets, whereas in 1953 the corresponding figure was down to 0.55. The credit for this improvement must be given to a falling birth rate, to more intensive supervision of children at welfare centers, and to stricter diagnostic criteria. About 65% of these patients were boys. In only 15 patients was the rickets refractory to vitamin D, and in less than 10 patients were clinical signs of vitamin D poisoning observed. In none of these cases did this poisoning have any permanent ill-effects.

SWITZERLAND

Meeting of the International College of Surgeons.—The meeting of the International College of Surgeons in Geneva in May marked the 20th anniversary of the founding of the College in Geneva by Dr. Max Thorek of Chicago. Besides its strictly scientific activities, the college has concerned itself with mutual aid between surgeons. After the terrible bombing that destroyed a part of London, the college helped to rebuild the Royal College of Surgeons. During the floods that devastated the Netherlands, the college aided the surgeons whose offices had been damaged with repairs and new instruments. The college has 12,000 members from 64 countries. A volume of 1,200 pages, with more than 600 illustrations, is available to those who wish to read the papers presented at the meeting. Among the speakers was Prof. G. Domagk of Wuppertal, a winner of the Nobel prize in medicine, who helped to develop the sulfonamides. Switzerland honored Dr. Max Thorek by presenting him with a work of art that will go to the International College of Surgeons Hall of Fame in Chicago.

Meningoencephalitis.—In the *Bulletin of the World Health Organization* (vol. 12, no. 4), it was stated that meningoencephalitis, a virus disease whose importance has only recently been recognized, may be difficult to distinguish from poliomyelitis on either clinical or pathological grounds so that in such cases the correct diagnosis can be made only in the virus laboratory. The clinical, epidemiological, pathogenic, and immunologic aspects were studied by specialists from Slovenia, Austria, and the Netherlands, and the serologic aspects were studied by Pond and Russ of the Army Medical Service Graduate School, Washington, D. C. The increasing importance of virus diseases is considered to be due to the reduced danger from bacterial diseases resulting from effective control, improved diagnostic methods and, for some virus diseases, from a true increase in incidence. The principal vector of meningoencephalitis is a tick, which has been observed in rural and wooded areas and chiefly affects people between 10 and 30 years of age. About 95% of all cases occur from May to September. The course of the disease is generally diphasic; a prodromal stage being observed about 10 days after a person has been bitten. It is influenza-like, but vomiting and a slight stiffness in the neck may also occur. This stage may last from 2 to 5 days, being followed, after a quiescent period of about 10 days, by the meningoencephalitic stage, with high fever, violent headaches, vomiting, loss of consciousness, delirium, and coma. Leukopenia is found in the prodromal stage, and neutrophilic leukocytosis in the meningoencephalitic stage. Another characteristic feature is a progressive increase of protein in the spinal fluid. There is a wide diversity of clinical phenomena in different patients. Even the differentiation from tuberculous meningitis is frequently difficult. An organism was isolated from the blood; the antigen prepared from the brains of mice infected with this organism fixes complement with serums from typical cases of the disease. This organism appears to be a neurotropic virus and to be the causative agent of the disease in Slovenia.

In Austria the epidemiological features were similar, but only one-third of the patients reported tick bites and many others reported only mosquito bites. The incubation period is variable. Abortive cases were observed. Among the 304 patients hospitalized at the Neurological Clinic, Graz, 175 cases were of aparalytic meningeal form, 50 were preparalytic, 27 were spinal paralytic, 20 were bulbospinal or ascending paralytic, 7 were bulbar paralytic, 3 were radiculitic or transmyelitic, and 22 were encephalitic. The case fatality rate was 4.6%. The clinical course was usually diphasic, as in Slovenia, and the changes in the spinal fluid showed a close similarity to those seen in poliomyelitis, but paralysis of the shoulder girdle and upper arm predominated. The postmortem examination showed the findings of acute encephalitis, with changes most marked in the gray matter. Histological findings revealed extensive involvement of the anterior horns of the spinal cord, medulla oblongata, pons, and especially the Purkinje cells of the cerebellum. The possibility of louping-ill virus, Russian spring-summer encephalitis, Czech tick encephalitis, and poliomyelitis must be considered. Differential diagnosis from poliomyelitis rests on serologic and immunologic bases, as clinical and postmortem findings alone are not sufficient. Treatment is symptomatic and supporting.

The pathogenic and immunologic properties of the virus have been investigated by a group in Leyden, Netherlands. Two virus strains were isolated from the central nervous system of two fatal human cases in Austria. Monkeys, mice, and chick embryos proved susceptible. The experimental disease in monkeys was characterized by acute meningoencephalomyelitis, localized particularly in the gray matter of the brain stem, cerebellum, medulla, and anterior horns of the spinal cord. The virus produced discrete lesions on the chorioallantoic membrane of the chick embryo. In monkeys viremia was demonstrated for at least six days before the development of the clinical illness. The virus was shown to be closely related to that of Russian spring-summer encephalitis. Neutralizing and complement-fixing antibodies could be demonstrated in patients' serums. In a further study, also carried out in Leyden, attempts to transmit the disease by the bites of mosquitos engorged on infected animals proved unsuccessful. Pond and Russ studied the reactions of two viruses isolated during the 1953 epidemics in Slovenia and Austria in neutralization tests. They were found to be indistinguishable under the conditions of test from the agents called Russian spring-summer encephalitis virus, Czech encephalitis virus, or louping-ill virus, which are believed at present to be strains of the same agent.

Influenza Epidemic.—According to reports made available to the World Health Organization, the influenza epidemic of the winter 1954-1955 was mild and caused relatively few deaths. It was similar to previous epidemics that seem to have followed each other at intervals of two or three years ever since the epidemic of 1918. Virus B was identified in every outbreak that occurred last winter. Although it is too soon to present a complete picture, some idea of the nature and extent of the last epidemic can be obtained from the following descriptions of outbreaks in various countries.

The first epidemics in the Northern Hemisphere were reported in Wales and the northeast of England in October. In January the incidence increased among adults. The infection spread to most parts of the country and receded in February. Virus B was largely responsible, but a few cases of influenza A were diagnosed in South Wales, the Midlands, and London. Toward the middle of December several cases were reported in Slovenia, but it was not until January that outbreaks were noted in other parts of Yugoslavia. In the last week of February the incidence increased Zagreb, and in the first week of March it also rose in Serbia, particularly in Belgrade. At the beginning of January, Canada reported the beginning of an epidemic involving several hundred cases in the area around Calgary, Alberta. In the last week of the month, the disease abated in this sector, but an outbreak was noted in Ontario. At the beginning of January there was an outbreak in northern Holland. By the middle of February influenza had spread throughout the rest of the country, especially among children. There were a few deaths attributed to secondary micrococcic pneumonia. In the second half of January there was an increase of nasopharyngitis in West Germany, especially in the Bremen-Hamburg-Lübeck area and mainly among children and young adults. The infection remained mild until the beginning of February. An epidemic also developed in Hesse. The infection was very contagious and affected 30% to 40% of the schoolchildren in town and more than 50% in rural areas. At the end of January, nearly 10% of the adults were also affected. In the first week of February, the epidemic spread to the Rhine area, the region of the Main, Schleswig-Holstein, and Bavaria, where the main focus seemed to be located. In the second half of February, the infection receded in the north, after having affected nearly 15% of the population. During these epidemics the presence of virus B was demonstrated, but virus A was identified in certain cases in the central and northern parts of the country.

In Helsinki, Finland, a focus of influenza appeared in the second half of January, mainly affecting children. In the same period a relatively mild epidemic of influenza was reported in Japan among children of primary schools in Honshu. At the beginning of February, the disease spread to the primary schools of Tokyo and to several other prefectures of Honshu. In the United States, absence among the schoolchildren of Portland and Multnomah County, Oregon, increased from the beginning of February because of an unusual prevalence of respiratory infections. Reports received in mid-February indicated a large number of cases of influenza-like infections in Syracuse, N. Y., and in Maine. In Austria, reports of cases of influenza increased rapidly beginning in the first week in February and began to fall off in the second week of March in most of the country, with the exception of the northeast. In the first week of February, influenza morbidity increased in Norway, Sweden, and Switzerland. These outbreaks reached their maximum during the week ending March 19.

Russia Returns to World Health Organization.—The Soviet Union withdrew from the World Health Organization and became an inactive member about six years ago, as did the other iron curtain countries. On July 8 it was announced in Geneva by a representative of Russia that his government now proposes to take an active part in the work of the World Health Organization, to take up membership in the International Bureau of Education, and to contribute 2 million rubles to the United Nations Children's Fund in the form of services and equipment for maternity and child care.

CORRESPONDENCE

CORTISONE TREATMENT FOR SARCOIDOSIS

To the Editor:—With regard to the article by Israel, Sones, and Harrell in the Oct. 2, 1954, issue of THE JOURNAL, page 461, entitled "Cortisone Treatment of Sarcoidosis," we agree with most of the statements made by the authors but take exception to two of their major points. We have never claimed, as suggested in the article, that the sarcoid process itself becomes aggravated or spreads because of cortisone. Our experience, like theirs, is that there is either clearing or no change at all in the pulmonary lesions during and immediately after treatment (*Am. J. Med.* 15:468, 1953. Ibid. 15:477, 1953). We have not used the term "rebound relapse," and this term has no meaning for us. We have described patients in whom the pulmonary parenchymal infiltration reappeared after clearing with cortisone. This we regard simply as continued activity of the disease process that had been temporarily halted by treatment. We are aware that retreatment will often bring about complete clearing again. The truly untoward effects of therapy described by us are not commented on at all by the authors, and it would appear that a detailed functional study of these patients during and periodically after completion of cortisone therapy was not made. This refers to the occasional worsening of lung function in the form of impairment of diffusing capacity and/or the development of emphysema. It might be added in passing that follow-up studies of these patients to date confirms the presence of these abnormal findings. It is admittedly impossible to state that these changes would not have occurred without cortisone therapy, but the rapidity of their development suggests that there is a cause and effect relationship.

The second point is the development of tuberculosis following cortisone therapy for sarcoidosis. The statement made by the authors that "clearly these cases represented instances of tuberculosis simulating sarcoidosis" cannot be supported. This criticism conceivably could be leveled at our patient in case 5 in whom diffuse pulmonary disease and various other systemic manifestations were present at the start of treatment, but we believe that the large number of bacteriological studies as well as the negative tuberculin tests made this possibility unlikely. In our patients in cases 6 and 7 the evidence of sarcoidosis was unequivocal. After the development of positive cultures for Mycobacterium tuberculosis, the patient in case 6 became bacteriologically negative after chemotherapy was begun and had a long course of chemotherapy. He has continued to be tuberculin positive and has had progressive pulmonary involvement, which we attribute to sarcoidosis, since no bacteriological evidence of tuberculosis appeared up to one year after cessation of antituberculous therapy despite progressive roentgenographic worsening. Our patient in case 7, after the development of positive cultures, was not treated with antituberculous chemotherapy, but, after serial positive cultures for two months (organisms proved virulent for guinea pigs), his gastric washings became negative and have remained so to date. In this patient also, bilateral parenchymal infiltration subsequently appeared, associated with negative tuberculin tests as well as negative cultures—clearly evidence of exacerbation of the sarcoid process without progression of his tuberculosis.

In all three of these patients, because of the rapid development of tuberculosis, we have little doubt that a tuberculous infection had been present previously and that this was brought to clinical attention as a result of cortisone therapy. We do not contend that an entirely new infection occurred and progressed to clinical tuberculosis within as little as one month's time. Our patient in case 8 is in a class by himself, and it is difficult to state precisely what the cortisone therapy accomplished. Evidence of tuberculosis was present prior to cortisone therapy, and we do not contend that cortisone caused it. This case merely emphasizes the clinical difficulty of evaluating the condition of these patients if intensive bacteriological studies are not done. It serves no purpose to say, in retrospect, that patients with clinically typical sarcoidosis actually had tuberculosis simulating sarcoidosis when all the usual criteria for the diagnosis of sarcoidosis have been fulfilled. Even if it be granted that in some patients the syndrome of sarcoidosis may be caused by the tubercle bacillus, the point is that it is often impossible to recognize these cases clinically until cortisone therapy changes the findings into those of frank tuberculosis. All the evidence available in such patients prior to treatment is strongly against the diagnosis of tuberculosis. It would seem, therefore, that in a certain number of cases that look like sarcoidosis evidence of tuberculosis must be expected to develop with cortisone therapy, and we do not have any really effective way of deciding beforehand which cases fall into this group.

F. J. LOVELOCK, M.D.
D. J. STONE, M.D.
Veterans Administration Hospital
408 First Ave.
New York 10.

This letter was submitted to Drs. Israel, Sones, and Harrell, who have replied as follows:

To the Editor:—Drs. Lovelock and Stone appear to differ with us significantly only in their beliefs that (1) a large proportion of patients with sarcoidosis have tubercle bacilli lurking in their tissues and (2) that it is frequently impossible to distinguish tuberculosis and sarcoidosis. The difficulty in distinguishing between sarcoidosis and tuberculosis is well recognized. It should be recalled that at one time sarcoidosis was generally regarded as an atypical form of tuberculosis. At present there is almost unanimous agreement that sarcoidosis is nontuberculous in etiology. The rarity with which tubercle bacilli have been found in sarcoidosis (Rostenberg, 1953) has been one of the most persuasive reasons for this conclusion. The fact that most investigators have rarely encountered tuberculosis following corticotropin and cortisone treatment of sarcoidosis (Shulman and others, 1952; Siltzbach and Ehrich, 1954; Carstensen, 1954) has provided additional evidence that in most instances the two diseases can be differentiated.

The unusual experience of Drs. Lovelock and Stone with untreated as well as treated patients may be attributable to their reliance on the Kveim test. They state that in most of their cases "the diagnosis was proven histologically by tissue biopsy or Kveim reaction." The Kveim reaction is not sufficiently well standardized to permit its use as a substitute for biopsy study. We have found the Kveim test frequently positive in tuberculous subjects. Demonstration of epithelioid tubercles does not "prove" the diagnosis of sarcoidosis, for a similar appearance may be observed in tuberculosis, histoplasmosis, and beryllosis. A biopsy is essential to the diagnosis of sarcoidosis, because, in addition to demonstrating compatible tissue changes, it permits bacteriological, mycological, and chemical study of the excised material. If these criteria for the diagnosis of sarcoidosis are strictly adhered to, tuberculosis should rarely supervene. We agree that the indiscriminate use of cortisone in patients with unsubstantiated diagnoses or with minor manifestations is to be deplored. Fear of tuberculosis should not deter the physician from administering this agent in well-studied cases of sarcoidosis, especially those in which there is ocular, myocardial, or progressive pulmonary involvement, where its clinical value seems indisputable.

HAROLD L. ISRAEL, M.D.
MAURICE SONES, M.D.
D. D. HARRELL, M.D.
255 S. 17th. St.
Philadelphia 3.

ANTIBIOTICS

To the Editor:—In the May 21, 1955, issue of THE JOURNAL, an editorial by Dr. Maxwell Finland on antibiotic-resistant micrococcic infections excellently summarizes the problem. From my short experience in the private practice of pediatrics, I find that it is probably even more a problem outside than inside the hospital because of the inclination to treat infections without sensitivity tests on the organisms. In the vein of Dr. Bean's "Omphalosophy: An Inquiry into the Inner and Outer Significance of the Belly-Button," reviewed with tongue-in-cheek in THE JOURNAL, June 18, 1955, page 616, I have summarized my own feelings.

With penicillin, sulfas, and the "mycins" as our aid,
We've "polished off" all kinds of germs for more than one decade.
To give a drug without a test we thought was rather "foxy"
As every time we knocked them out: Bacilli and the cocci.

And every time there came a germ that showed us some resistance
They found another "mycin" drug to come to our assistance.
But now we've no new "wonder drugs" to add to our collection,
And here we stand, disarmed against the dreaded staph. infection.

Physicians (and the public, too!), a trifle too vainglorious,
Are now quite shocked to find that they can't "shake off" H. Staph. Aureus.
Too tough for all our armaments, they sit around and mock us,
Those indolent and purulent obnoxious clumps of coccus.

Although we talk of "Atom" bombs, I'll worry when they're falling;
Infection with resistant germs to me is more appalling.
And if they do not shortly find some new and potent drugs,
The world won't go to dogs at all, but right back to the "bugs!"

LAWRENCE S. ROSS, M.D.
1369 New York Ave.
Huntington Station, N. Y.

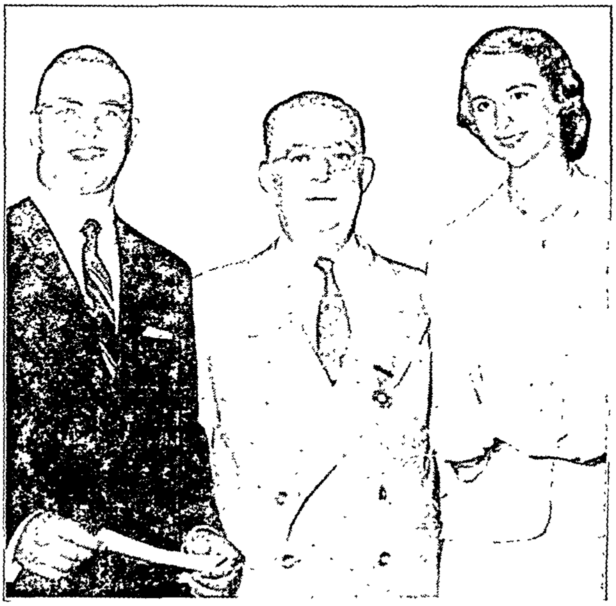
CHLOROPHYLL DEODORIZATION

To the Editor:—In the April 9, 1955, issue of THE JOURNAL, page 1279, "Chlorophyll Solution in Deodorization of Advanced Carcinoma of Head and Neck," deserves special comment. The survey emanates from a cancer research center of good repute. The findings, I am sure, are accurate and sincere. It is unfortunate that the findings and conclusions are based on a liquid solution applied in the oral cavity. At best, this type of therapy would be unsatisfactory in such an area. The wasted material and its intimate contact with salivary secretion would nullify its efficacy. In other locations of the body, were the same preparation applied, it could have been controlled far more accurately. This would also hold for the application of chlorophyll ointment. These statements are borne out by the findings of the Therapeutic Trials Committee of the American Medical Association (*J. A. M. A.* **140**:1336 [Aug. 27] 1949). The results have been corroborated by many independent workers. My personal experience with chlorophyll was limited principally to the use of chlorophyll tablets given internally. The product used was Chloresium. I have described the results elsewhere (*West. J. Surg.* 60:363 [July] 1952). Since that time, I have taken a special interest in this preparation. The results have been satisfactory for body odors, foul-smelling wounds, infected sinuses, colostomies, and other malodorous conditions. In fairness to the authors, might I suggest the use of the chlorophyll tablet internally to reduce the malodor produced by the condition generally. As for the local lesions, it would be impossible to eliminate the odor from morbid or necrotic tissue by any means, least of all with a solution that simply bathes the surface. Here I believe the best therapy would be actual surgical excision or medicinal agents now available on the market for the elimination of this necrotic material.

MORRIS JOSEPH, M.D.
271 Lexington Ave.
Passaic, N. J.

ELKS SCHOLARSHIPS

To the Editor:—The Elks National Foundation, of which I am a trustee, is a large trust fund held in perpetuity with no overhead expense. The entire expense is paid by the Grand Lodge, and all income is used for humanitarian purposes. Over the years we have given many college scholarships, and at the last meeting in Philadelphia the Elks National Foundation gave 56 college scholarships. The winner of the first place in the girl's division was Kathleen Joanne Kampmann, Naches, Wash. The top award in the young men's department went to Robert Allen Evans, El Dorado, Kan. Robert will enter Yale University New Haven, Conn., as a premedical student next fall. Kathleen is a premedical student at the University of Washington, Seattle. I am happy that the two top winners this year are prospective doctors. In addition to many contributions and its humanitarian activities, the Elks National Foundation has become interested in cerebral palsy, and I presume that 300 or 400 scholarships in cerebral palsy have been granted by this foundation in the last two or three years. I am not interested in advertising the Elks, but I am interested in the voluntary way of doing things. Several of our most valuable students are now doctors of medicine. This year's top winners received high grades in competition with hundreds of others, and I believe that both of them had grades in the neighborhood of 99%. They were chosen from nearly 5,000 youngsters from every state and territory of the United States. The applications are judged on a basis of 60% for scholarship and 40% for character and citizenship in school and community.



Top students receive Elks National Foundation scholarships. *Left to right:* Robert Allen Evans, El Dorado, Kan.; Dr. McCormick; and Kathleen Joanne Kampmann, Naches, Wash.

EDWARD J. MCCORMICK, M.D.
510 Ohio Bldg.
Toledo 4, Ohio.

BOOKS FOR KOREA

To the Editor:—I read with interest the letter in the July 16, 1955, issue of THE JOURNAL from our chairman, Dr. Howard A. Rusk, on "Books for Korea." Due to the excellent cooperation of the physicians, hospitals, medical schools, and medical societies of the United States, this has been an extremely successful and important venture. I regret that the address to which future contributions of books should be shipped was incorrect. It should read: Medical Section, Sharpe General Depot, Tracy Annex, Lathrop, Calif. Shipments should be marked "KORMEDED."

MAJOR GEN. C. W. CHRISTENBERRY (Retired)
President, American-Korean Foundation
345 E. 46th St.
New York 17.

THE LEISURE CORNER

PICNICKERY—A SCIENCE

With warm weather upon us, the thoughts of many doctors the country over tend to wander off in the general direction of the great outdoors. To some, warm days bring to mind a favorite mountain trout stream and the monster that got away. To others, they are a reminder of thrilling tennis games won—and lost. But to many more, the warm weather brings thoughts of carefree hours spent in the country doing nothing or, more precisely, picnicking.

Actually, picnicking is not just doing nothing. Not too long ago, it took the foresight and forethought of a master strategist to plan a really successful picnic. Today, thanks to a number of modern gadgets and conveniences, this is no longer so. Picnicking has been transformed from a highly difficult maneuver into what has been called "the simple science of picnickery." Webster's dictionary has this to say in the way of a definition for the word picnic: "A pleasure party, the food for which is usually provided by members of the group and is eaten in the open air."

Because people enjoy picnics in different ways, a more precise definition would be misleading. To some, an enjoyable picnic requires little more than those two basic ingredients, food and fresh air. To others, such an outing may appear dull and incomplete unless combined with other pastimes, ranging from competitive games to boating at a nearby lake. A master at picnickery—a word, incidentally, that lexicographers have grossly overlooked—fashions an outing to fit everyone's taste.

If there are children in the group, one should make a point of bringing along a rubber ball, preferably one of rather light weight and not overly small in size. With the aid of this simple toy and a little imagination, one can devise any number of exciting games for the youngsters. An example is modified baseball, where the fist serves as a bat. The chance of injury to any of the participants in such games is practically nil. The less agile members of the party, meanwhile, could be playing cards—a particularly versatile picnic pastime. Other sedentary games that have proved popular at picnics include scrabble, charades, and word games. Fishing, generally speaking, makes a poor time-filler at picnics—primarily because it so often takes up too much time. A few nibbles on one's line can make a picnicker forget all about food and his companions and stay glued to one spot grimly determined to "get that fish." So, unless one is planning to fish primarily and picnic secondarily, rod and reel should be left at home beyond temptation's reach.

Picnic sites are many and varied. Careful planning can make an outing in one's back yard a delightful experience. The usual picnic site, however, is a spot far removed from home—the sea shore, perhaps, or a park. Probably the greatest convenience of the present-day picnicker is his automobile. It makes sure he gets there, providing, of course, he in turn has made certain it was in good working order before starting out. After one gets there, however, he may soon be wishing for the peace and convenience of the city unless he is aware of a few basic facts and has bothered to invest in a few rather essential items. In the basic facts department is the business of selecting a good picnic site. To start with, one should never pick a spot because it is beautiful and has a grand view and forget about everything else. Low-lying, damp areas, for instance, should be avoided no matter how pleasant they may appear. For, with the coming of evening, such spots are frequently invaded by armies of mosquitoes and other insects that waste little time making a picnic out of picnickers. While on the subject of insects, it should be remembered that ants, too, enjoy picnics. So, before settling down, one should make sure the spot is nowhere near an ant colony.

Even a doctor may forget to bring a first-aid kit, which, needless to say, could be a big mistake. For cuts, bruises, and insect bites are frequent occurrences on such outings, particularly if there are children in the party. Children, naturally, have the grandest time of all. To make sure that they play safely, one should see if there are any bodies of water, deep holes, or similar hazards in the vicinity. Also, children should be taught as soon as possible to recognize dangerous weeds such as poison oak and ivy.

Next, and usually the key to a picnic's success or failure, is the matter of food. While this is normally thought to be totally in the women's department, assistance of an indirect nature would be both fruitful and welcome. This contribution should not come in the form of cooking tips shouted from the living room to the kitchen but in the form of a few reliable implements bought especially for this picnic and picnics to come. These implements are designed to keep cold foods and drinks cold, warm ones warm, and get uncooked food cooked.

Nothing is as tasteless, for instance, as a potato salad or a bottle of soda that has been in the sun without adequate protection. To guard against this picnic hazard there are portable insulated picnic containers. In selecting one, special attention should be given to weight. Every extra ounce feels more like a ton after a long hike, so that containers made of heavy metal would add needless strain to an outing. Lightness plus smart design—an important feature from the wife's standpoint—are incorporated in some picnic containers. The Skotch Kooler, for instance, is an insulated container in smart plaid that has a four gallon capacity and can keep foods and drinks hot or cold for many hours.

Incidentally, the problems entailed by using ice—its weight, bulk, and general sloppiness—can be avoided by utilizing a newly developed dry cold refrigerant that comes in cans. The cans contain a chemical substance that freezes quickly when placed in the refrigerator's freezing compartment. A six ounce can has the cooling equivalent of nine ice cubes and can be used over and over. It should be remembered that insulated picnic containers are also useful as a means of keeping foods warm. If that is the purpose, one can make doubly sure that a casserole dish, for instance, stays warm by heating a brick in the oven, wrapping it in tinfoil, and placing it underneath the dish. A cool drink of the homemade variety is always welcome at a picnic. To make sure it stays chilled, there are insulated jugs of considerable capacity.

If a cookout is planned, no special equipment other than wood or charcoal may be necessary. Many state parks and recreation areas have grills for the use of picnickers; however, many areas do not. The safest thing to do, unless one knows for certain whether such facilities exist, is to bring along a portable charcoal grill. A word of caution to those doctors who remember the open campfires used in their camping days—many states expressly prohibit starting open fires for cooking or other purposes, except in certain designated areas. Other states require a special permit. So, no matter how good a woodsman one is, a charcoal grill could come in handy.

Some of the newer grills make starting a fire a foolproof operation by incorporating a cleverly engineered draft system. This insures against another picnic dampener; for many a temper has been lost and a box of matches used up in fruitless attempts to get a fire started. Failure in this department could be due to lack of dry kindling or the fact that too much wood or coal has been dumped on the kindling at one time. An added bit of insurance here would be to take along a can of flammable liquid specially prepared for such contingencies. This last mistake, smothering a fire with too much fuel, is one that amateur chefs never cease to make. With the average grill, for instance, about 12 briquettes should be placed on paper, not more. Once the fire is well started, another six balls should be added. This is enough to cook for a dozen people, so that continuing to add coal would be both a waste and a mistake. After the dinner is cooked and done comes the important job of putting out the fire. Countless forest fires have been started by campers who carelessly left a few not totally extinguished coals behind.

Many, many more facts could be noted about this science called picnickery. Most are common sense rules, others of the kind that one never really learns without practice. Fortunately, the mistakes that are usually made by beginners are of the type that leave no scars. And mistakes or none, few pastimes bring more pleasure to more people. Perhaps all that really needs to be learned about picnickery has been summed up by the Boy Scout organization in two simple words: "Be Prepared."

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Experience with Phenylindanedione in the Management of Acute Myocardial Infarction. G. M. Breneman and E. M. Priest. Am. Heart J. 50:129-135 (July) 1955 [St. Louis].

The authors list the properties desired in an ideal anticoagulant drug and report that Soulier and Gueguen in France have used 2-phenyl-1,3-indanedione as an anticoagulant since 1947. The drug has a coumarin-like action but is not a coumarin derivative. It is reported to have rapid onset of action, wide range of therapeutic safety, and few toxic reactions. This drug has been used at the Henry Ford Hospital as the routine oral anticoagulant since June, 1953. The authors report their experience in 251 consecutive cases of proved myocardial infarction to whom the drug had been administered for a minimum of 48 hours. These cases were unselected except that those patients in whom any type of oral anticoagulant was contraindicated and all those receiving the drug for less than 48 hours were excluded. The initial dose was 300 to 500 mg. given in divided doses in the first 24 hours. Subsequent dosage usually varied from 100 to 200 mg. daily, also given in divided doses. An occasional patient required smaller or larger daily amounts to maintain the desired hypoprothrombinemia. The over-all recovery rate was 90%. Thromboembolic complications occurred in 3.5%, and hemorrhagic complications in 1.6% of the patients. Two skin eruptions were observed that required the immediate discontinuation of the drug therapy. A number of favorable reports have appeared about this drug, and the authors feel that their experience confirms its value in the management of acute myocardial infarction. They regard it as the best currently available oral anticoagulant.

Pharmacological Combination of Corticotropin, Ascorbic Acid, and Adenosine Triphosphoric Acid in Crises of Bronchial Asthma. L. Rosa and G. Bergami. Minerva med. 46:936-941 (April 7) 1955 (In Italian) [Turin, Italy].

Actavis, a combination of 4 I. U. of corticotropin (ACTH), 20 mg. of adenosine triphosphoric acid (ATP), and 1 gm. of ascorbic acid, was given to 20 patients several days after they were admitted to the medical clinic of the University of Bologna with severe status asthmaticus. The drug was given slowly by intravenous injection. The initial dose of one-half vial on the first day was increased to one to three vials daily and then tapered off when improvement was observed. Tolerance to the drug was good except in two patients in whom a burning sensation, nausea, dizziness, and headache necessitated discontinuance of the therapy. Excellent or good results were obtained in 16 patients in whom the status asthmaticus was interrupted. The condition remained unchanged in the other four patients, despite the fact that they received three vials of the preparation daily. Thirty days after completion of the treatment, a relapse was observed in four patients, in one of whom it was severe. These encouraging results indicate a probable synergy between the various components of Actavis.

Thrombosis of the Abdominal Aorta: A New Physical Sign. G. W. Covey. Nebraska M. J. 40:205-210 (June) 1955 [Lincoln, Neb.].

Many of the recent reports dealing with occlusive disease of the abdominal aorta stress the so-called insidious, slowly progressive, chronic thrombosis involving the aortoiliac segment in contrast to acute thrombosis or to embolic occlusion of the aorta and other arteries in this region. The histories of four men, ranging in age from 47 to 60 years, show that one had a more acute type and three had typical insidious chronic thrombosis. Intermittent claudication is the cardinal symptom. When the terminal aorta and iliac arteries are involved, this symptom is not, however, the intermittent limp due to pain in the calf of the leg or foot. It is an aching sensation just short of pain and related in quality to the sensation of fatigue. Moreover, it is typically located in the region of the hips and low back, and has been referred to as the "hip-type" of claudication. Gangrene rarely occurs in cases with chronic insidious occlusion, as contrasted with the acute, sudden vascular closure in which it is common. In three of the cases a loud systolic murmur was heard over the aorta, above the umbilicus, and over one or both the common iliac arteries. Such a murmur occurs in other conditions, especially in aneurysm of the abdominal aorta, but there is an uncommon element in this particular murmur; it may be heard over the spinous processes of the lumbar vertebrae. Here it is even louder and more musical in character than it is over the anterior aspect of the abdomen. It is loudest over the vertebrae when the patient lies in a prone position. This murmur was first heard by the author in the third case and also in the fourth case. He watched for this murmur in many other conditions, but failed to find it. He feels that it may prove a useful sign in the differential diagnosis of chronic, insidious occlusion of the terminal aorta, or in occlusion of the iliac vessels. It probably occurs only when the aorta itself is involved in the thrombotic process or when both common iliac arteries are occluded. Although Leriche stated that loss of penile erection is one of the two cardinal symptoms, none of the patients presented here complained of impotence, and of the two questioned about this symptom neither admitted it. Only one of the three patients having chronic, insidious thrombosis was subjected to aortography. This procedure served only to confirm the clinical diagnosis. The clinical diagnoses were made on the basis of the "hip-type" of claudication combined with the absence of vascular pulsations. The peculiar musical murmur over the lumbar spine is the new sign. Since this report was written, four additional patients have been observed in whom occlusion of one or the other common iliac artery was present. One of the four had impotentia erigendi. None exhibited the lumbar musical systolic murmur. This tends to confirm the theory that involvement of both iliac arteries or of the terminal aorta is needed to engender this murmur. A long and active life is the probable outlook for many patients who have the chronic, insidious type of aortoiliac thrombosis. Occlusion of the renal arteries by cephalad extension is the greatest danger. Medical management has been used in the three cases of chronic insidious thrombosis herein reported. Two patients believe they can walk farther before developing pain after Priscoline or other similar drugs have been taken for several months. Accurate evaluation of drug therapy, however, is difficult. Surgical therapy varies. Lumbar sympathectomy, unilateral or bilateral, has been used alone or combined with ligation and removal of the thrombosed segments of the various arteries. Thromboendartectomy has been performed, at times combined with a support made from fascia lata to reinforce the weakened arterial wall. The latest procedure, and perhaps the most logical, is excision of the involved artery and replacement by an arterial graft.

The place of publication of the periodicals appears in brackets preceding each abstract.

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Rehabilitation of the Patient with Chronic Rheumatoid Arthritis: Two-Year Study. E. W. Lohman. J. Chronic Dis. 1:628-637 (June) 1955 [St. Louis].

Rheumatoid arthritis is a progressively crippling disease of unknown origin for which there is no known cure. The fact that severe crippling and invalidism ultimately appear in from 10 to 15% of the patients with this condition makes the problem of their rehabilitation socially and economically important. Rehabilitation was formerly considered applicable chiefly to patients with a "burned-out" disease process. The advent of the adrenal and pituitary hormones for the better control of the inflammatory process of rheumatoid arthritis, however, suggested the possibility that a combined medical and rehabilitation program might be used to advantage in patients with active disease. The favorable impressions obtained from work with a pilot group of severely crippled patients who were hospitalized and treated with a combination of cortisone and rehabilitation measures led to the establishment of a full-scale research project in December, 1951, at the Goldwater Memorial Hospital. The various types of special treatment needed included physical therapy, occupational therapy, remedial exercises, psychotherapy, psychological testing, vocational counseling, and assistance from social workers. Patients admitted during the first year of the study (group 1) had to meet the following criteria: 1. They had to be within the 21 to 55 year age group, with severe functional impairment but without any obvious need for corrective orthopedic procedures. 2. The rheumatoid process had to be active and progressive. 3. There could be no medical contraindications for hormone therapy. Less rigid criteria were adopted in the second year in order to obtain a group for comparison with the first, but the group 2 patients still had to have active and progressive rheumatoid arthritis, to be free from problems requiring primarily orthopedic correction, and to be incapacitated for gainful employment. Patients in group 1 had an average age of 46 years, with a disease duration of 13 years. Those in group 2 averaged 40 years in age and had a disease duration of 7 years. All were evaluated medically, functionally, and psychosocially before treatment was begun. Cortisone or hydrocortisone in oral doses was the drug used in most cases. Physical rehabilitation measures were started as soon as the maintenance dosages of the drug were established, and the patients were then continued on both drug and rehabilitation measures. They were scored on their proficiency in the activities of daily living before treatment began, after the establishment of maintenance drug therapy, and repeatedly thereafter. Evaluation of the results at the end of the first two year period showed that 14 of the 18 patients in group 1 and all 20 of those in group 2 had been discharged from the hospital. Only four group 1 patients still required custodial hospital care and even in these there had been a 20% increase in function. Functional improvement in the other group 1 patients ranged from 26% to 39% in the case of those who were totally self-sufficient on discharge. One of the totally self-sufficient group 1 patients was placed in a job. Full-time jobs were also found for 7 of the group 2 patients, 15 of whom were totally self-sufficient. Several of the patients not placed in jobs are now working at home. These results show that patients with rheumatoid arthritis can often be saved from invalidism by a broad program of rehabilitation.

Chemotherapy of Tsutsugamushi-Disease. S. Katsura. Acta med. et biol. 2:725-753 (Dec.) 1954 (In English) [Niigata, Japan].

The rickettsiosis known as tsutsugamushi disease was formerly treated by symptomatic measures, but the introduction of *p*-aminobenzoic acid, of chloramphenicol and of various antibiotics has decidedly changed the therapy of this disease. The author and a number of other Japanese investigators have demonstrated that tsutsugamushi disease can be cured by these drugs. In four patients treated with *p*-aminobenzoic acid medication was started between the second and eighth days of illness. Fever began to subside from three to five days after onset of treatment and disappeared in from seven to eight days; treatment was continued for about two days after subsidence of fever. No relapse occurred in these patients. Of 31 patients with tsutsugamushi disease, 7 were treated with chloramphenicol, 16 with chlortetracycline, and 8 with oxytetracycline. During treatment with these drugs the elevated temperature subsided as a rule within two and a half days. Although these drugs were effective in smaller doses and in a much shorter time, relapses occurred in a number of patients. The author also studied the in vitro rickettsicidal action of chlortetracycline, oxytetracycline, chloramphenicol, erythromycin, magnamycin, *p*-aminobenzoic acid, and several other drugs. In addition, he studied the effects of these drugs in mice that had been inoculated with Rickettsia tsutsugamushi. Factors influencing cure and relapse of tsutsugamushi disease were likewise investigated. The author feels that these and other studies have clarified to some extent the mode of action of the aforementioned drugs in tsutsugamushi disease. Many investigators have recognized that in rickettsial diseases these drugs, particularly the antibiotics, do not destroy the Rickettsia but inhibit growth. In his studies on tsutsugamushi disease the author confirmed that in addition to the direct inhibitory effect on R. tsutsugamushi, an activating influence is exerted, which gives vitality to the cells of the body and enables them to counteract the effects of the rickettsias. He also found that if antibiotics are to be used from the onset of the disease, it is not advisable to give them in such large doses as to rapidly counteract the increase in temperature; on the contrary, it is better, both for formation of immunity and consequently prevention of relapse and for economy of materials, to reduce fever slowly by administering small doses over a longer period.

Infectious Mononucleosis: Statistical Study of 77 Cases. R. Savosnick. Tidsskr. norske lægefor. 75:311-312 (May 1) 1955 (In Norwegian) [Oslo, Norway].

A seeming definite increase in the frequency of infectious mononucleosis during recent years is ascribed in part to greater attention to the general character of the disease and more frequent systematic examination of the blood, leading to correct diagnosis. In the five year period ending in 1952, 77 patients with infectious mononucleosis (44 males and 33 females) were treated in the epidemic department of Central Hospital in Trondheim. The disease rarely occurs in persons over age 30; most of the patients were between 16 and 20. Two-fifths of the patients were admitted with a diagnosis of diphtheria, one-fourth with a diagnosis of angina, and only one-tenth with the right diagnosis. While hepatic affection is believed to be present in most cases of infectious mononucleosis, liver damage is seldom so grave that the patient becomes icteric. There was visible jaundice in only two of these cases. The dominating introductory symptoms are sore throat, fever, and "influenza symptoms." In over half the cases more than 70% mononuclear cells were found, but it is the pathological lymphocytes that are pathognomonic for infectious mononucleosis and on which the diagnosis is based. Paul-Bunnel's reaction was positive in 19 out of 29 cases. Eighteen of the patients were treated with sulfonamides, 19 with penicillin, and the last 40 with Aureomycin. In all three groups the average duration of illness was between 10 and 13 days.

Treatment of Severe Hypertension with Methonium Compounds. V. Rønnov-Jessen. Ugesk. læger 117:549-558 (May 5) 1955 (In Danish) [Copenhagen, Denmark].

Methonium compounds were administered to 96 patients with severe hypertension and severe hypertensive disturbances. Nine patients died during the treatment, seven after treatment ended, from cerebral hemorrhage, heart failure, cardiac infarct, or renal insufficiency. The contraindications were uremia, recent cerebral or cardiac thrombosis, or psychic reduction that prevented the necessary cooperation. In judging the effect, the 84 patients treated for from 5 to 49 months were considered. In 16 cases the treatment was supplemented with reserpine. In each case treated the purpose was to find the dosage suitable to produce the greatest reduction of blood pressure and subjective disturbances with so few side-effects that there would be no temptation to give up the treatment. In many cases the patients became practically free from symptoms, and the majority improved subjectively. There were also objective improvements in a number of cases. Evaluation of the prognosis was not possible. In some cases the treatment prolonged life. The ideal hypertensive agent combines strong uniform effect with easy administration and few side-effects. Reserpine now most nearly meets the requirements, but the hypertensive action is often moderate and, particularly in severe hypertension, considerably weaker than that of the ganglion-blocking agents. These should at present be reserved for severe cases of hypertension that cannot be satisfactorily treated with reserpine. Severe hypertension with acute encephalopathy, symptoms of heart failure, or rapidly deteriorating renal function should be treated primarily with ganglion-blocking substances. Careful instruction of the patients is necessary for reasonable safety in the application of these drugs.

Combination Treatment of Hypertension with Pentapyrrolidin and Reserpine. I. Persson. Ugesk. læger **117:**568-571 (May 5) 1955 (In Danish) [Copenhagen, Denmark].

Because of the severity of the hypertension in 16 cases investigated, a powerfully active hypotensive substance had to be applied at the start of treatment. After pentapyrrolidin treatment was given for up to 10 months in eight of the cases and after pentapyrrolidin was given in as large doses as possible for two weeks in the remaining eight cases, 0.1 mg. of reserpine three times daily was administered in all cases and the dosage was slowly increased to 0.25 mg. twice daily, with simultaneous reduction of the pentapyrrolidin dosage. On the combination treatment of reserpine and pentapyrrolidin the subjective symptoms disappeared and the blood pressure dropped considerably, in most cases to normal values. The reserpine allowed reduction of the pentapyrrolidin dosage, and the possibility of side-effects, especially constipation, was lessened. There are practically no contraindications for reserpine, and the contraindications for the combined treatment are those for pentapyrrolidin. Caution is urged in cases with marked reduction of renal function. Recent thrombotic processes in brain and heart are considered contraindications. Coarctation of aorta, aortic insufficiency, pheochromocytoma, glaucoma, organic pyloric stenosis, and tendency to ileus contraindicate the combination treatment. The results of long-term treatment with these substances are not yet known.

Treatment of Hypertension with Reserpine (Serpasil): Preliminary Report. T. Hilden, A. R. Krogsgaard and E. Godtfredsen. Ugesk. læger **117:**572-575 (May 5) 1955 (In Danish) [Copenhagen, Denmark].

In 6 out of 38 cases of essential hypertension, treatment with reserpine could not be completed because of side-effects or lack of effect and cooperation. Satisfactory results were achieved in 16 cases after an average of six months' treatment. In the remaining 16 cases reserpine treatment was supplemented with hydralyzine (Apresoline). The reserpine dosage was individualized. Except in some cases, where up to 3 mg. daily was given for a short time, the highest daily dosage was 2 mg. On continued treatment the dosage was from 0.5 to 1.5 mg. daily, apportioned in four doses. The mean blood pressure fell an average of 27 mm. Hg. In five cases retinal changes regressed, and in two cases the electrocardiographic changes improved. In most cases improvement occurred in the subjective symptoms. Side-effects were generally slight. In some cases depression was seen, which in two cases necessitated termination of the treatment in spite of otherwise favorable results. On the basis of their results together with reports from the literature the authors conclude that reserpine can give satisfactory results, first and foremost in milder cases of hypertension. In other cases, especially more severe ones, the effect will often prove inadequate; here, combinations of reserpine with other hypotensive agents can be important.

Fatal Hexamethonium Intoxication. V. Rønnov-Jessen. Ugesk. læger **117:**584-587 (May 5) 1955 (In Danish) [Copenhagen, Denmark].

The case reported illustrates the possible danger connected with peroral hexamethonium treatment. In a woman, aged 68, with arterial hypertension, symptoms of shock with paralytic ileus and considerable uremia set in after five days' treatment with 250 mg. hexamethonium bromide five times daily. Death ensued in spite of fluid therapy, blood transfusion, and administration of nor-epinephrine. Necropsy showed dilatation of stomach and small intestine and localized gangrene in the distal part of ileum and bladder, presumably secondary to thrombus formation in the vessels. The moderate hexamethonium bromide dosage would not in most cases have affected the blood pressure significantly. Patients with severe hypertension should be hospitalized. Treatment with ganglion-blocking agents should be begun in the hospital to allow close observation of the patient during the introductory phase and timely treatment if needed. If ganglion-blocking substances are to be used in the practice, the introductory dose should never exceed 125 mg. of hexamethonium bromide or 20 mg. of pentapyrrolidin bitartrate, and the dose should be increased slowly. The smallest dose that will give subjective relief must be found. Careful instruction of the patient is the absolute rule.

Mechanism and Pharmacological Blockade of Dumping Syndrome: Preliminary Report. A. Dyk. Wien. med. Wchnschr. **105:**487-489 (June 18) 1955 (In German) [Vienna, Austria].

Dyk's observations on persons who had not undergone gastrectomy and to whom dextrose was administered by the intrajejunal route, in some of them after normal ingestion of food, suggest that the dumping syndrome may be elicited selectively by enteral administration of dextrose. The occurrence of the syndrome seems to depend on a disturbance of absorption, possibly in the sense of phosphorylation or dephosphorylation in the intestine and in the intestinal wall respectively. An elucidation of the actual pathogenesis of the dumping syndrome and a properly directed therapy may be expected from a closer clarification of these disturbances and their relationship to the functional hypophysial-adrenal system and, in a wider sense, to the entire autonomic nervous system. The vegetative mechanism on which the course of the syndrome is based is one of a sympatheticotonic state, which by a dumping process changes into a vagotonic state in a kaleidoscope-like fashion. Blocking of the syndrome can be effected with the aid of phenyl-ethyl-methyl-hydantoin given in doses of 0.1 gm. approximately one hour before the meal, and that probably by producing a primary vagotonic starting position. Thus a simple and reliable drug is available to give symptomatic relief to the patient with the dumping syndrome.

Acute Micrococcic (Staphylococcic) Enterocolitis as a Serious Complication of Antibiotic Therapy. P. Rentchnick. Deutsche med. Wchnschr. **80:**892-895 (June 10) 1955 (In German) [Stuttgart, Germany].

Profuse diarrhea, which occasionally was accompanied by shock or even resulted in death, occurred in some patients who were given antibiotics to achieve sterilization of the colon preparatory to a surgical intervention, or to treat pneumonia or an infection of the urinary tract. Morphological and bacteriological studies revealed that this complication can be traced to an acute micrococcic (staphylococcic) enterocolitis, which is a superinfection leading to intoxication of the organism, particularly the nervous system, with an enterotoxin. About 12 patients with this secondary micrococcic enterocolitis were observed at the Canton Hospital in Geneva during the past year. The disorder usually begins between the third and fifth day after onset of treatment with antibiotics, but sometimes earlier or later. The first symptom is usually a profuse diarrhea, which is accompanied by temperature elevation up to 40 C (104 F). Dehydration and loss of electrolytes rapidly result from the severe diarrhea, and signs of shock such as falling blood pressure, cold extremities, anxiety, oliguria, and retention of urea are evident. Although the clinical picture suggests toxemia or septicemia the blood culture is nearly always negative. It is important to recognize the first signs of this disorder, and in order to do this the intestinal function of patients being treated with antibiotics should be watched carefully. While a mild diarrhea and the fact that the stool loses its odor do not necessarily demand the instantaneous interruption of the antibiotic therapy, the stool should at once be subjected to bacteriological analysis, and if Micrococcus aureus is found in profusion, antibiotic therapy should be stopped and steps should be taken to treat the superinfection, restore the electrolyte balance, and counteract the shock. Erythromycin has proved to be the drug of choice for the treatment of resistant strains of micrococci.

Scleroderma: Clinical and Anatomic Study of 28 Cases. A. González Salvatierra. Rev. méd. Chile **53**:162-180 (March) 1955 (In Spanish) [Santiago, Chile].

Twenty-eight patients with diffuse scleroderma were observed in a hospital of Chile for the last nine years. There were 26 women and 2 men. The disease appeared in most of the patients in their middle age and progressed for several years. Symptoms in order of frequency were Raynaud's syndrome, arthralgia, pigmentation alone or with vitiligo, rigidity and hardness of the skin, and progressive deterioration of the general state of health. Edema, paresthesia, and cardiac insufficiency each were present in a patient. Two or more symptoms appeared simultaneously, in some cases as early as 7 or 20 years prior to the full clinical picture. Visceral involvement occurred before, together with, or after appearance of skin manifestations, without any relation to the acuteness or extension of the skin lesion. It manifested itself suddenly and unexpectedly by the occurrence of insufficiency of the involved organ. The heart, bronchi, lungs, and kidneys were the most frequently involved organs. Other organs and tissues were involved with less frequency but with the same degree of severity. There is no curative therapy for either the skin or the visceral disease, but the visceral lesion is more acute than the skin lesion. The most acute visceral involvement was that of sclerodermal nephropathy. It developed suddenly with hypertension, renal insufficiency, oliguria, progressive uremia, and a rapid acute course with fatal termination about a month after appearance of the hypertension. In the author's cases visceral involvement occurred in 14 patients (50%). Cardiopathy occurred in four patients, bronchopneumonic involvement in four, esophageal scleroderma in four, and nephropathy in two. These cases are reported in detail, with roentgen pictures and microphotographs. Four patients died from bronchopneumonia or from nephropathy. Three autopsies were performed. The pathological examination in bronchopneumonic involvement showed diffuse bronchial and pulmonary fibrosis with infiltration, bronchiectasis, alveolar infiltration, a stage of acute bronchopneumonia, and intense fibrosis of the arteries and arterioles with thickening of the intima. The pathological picture of sclerodermal nephropathy consisted of cortical necrosis with external zones of hemorrhage or infarct, endoarteritis, fibrinoid necrosis of blood vessels, and necrosis of the glomeruli, tubuli, and interstitial tissue. The medulla of the kidney was normal.

The Treatment of Pulmonary Tuberculosis with Iproniazid (1-Isonicotinyl-2-Isopropyl Hydrazine) and Isoniazid (Isonicotinyl Hydrazine). C. M. Ogilvie. Quart. J. Med. **24**:175-189 (April) 1955 [London, England].

After the antituberculous properties of hydrazine derivatives of isonicotinic acid had been reported during the early part of 1952, isoniazid was released for general use and was universally accepted as an effective antituberculous agent. The isopropyl derivative (iproniazid) was made available for clinical trials only in certain centers. The author summarizes the known differences between iproniazid and isoniazid and confirms that higher plasma levels can be obtained with iproniazid in man. Iproniazid proved ineffective against tuberculous infections resistant to isoniazid but effective against sensitive infections. The emergence of resistant strains was noted in a high proportion of patients treated with iproniazid alone. Two comparable groups of patients with pulmonary tuberculosis (mainly recent disease, or a recent spread of chronic disease) were treated for two to four months with iproniazid and isoniazid, respectively, each drug being combined with streptomycin. Average gains of weight and the incidence of toxic effects were considerably greater in the group treated with iproniazid. Progress, as judged by temperature response, the closure of large cavities, and the incidence of bacteriological resistance, was more favorable in the iproniazid group. The higher plasma levels attained in iproniazid therapy may well account for the greater incidence of toxic effects in patients treated with this drug. It seems unlikely, however, that the differences in the isoniazid and iproniazid plasma levels during therapy are sufficient to offset the fact that iproniazid is about 60 times less active than isoniazid against the tubercle bacillus in vitro. Why, then, should patients treated with iproniazid progress at least as well, and also gain considerably more weight, than those treated with isoniazid? The author found that patients with bacteriologically resistant infections gained more weight with iproniazid therapy than they had done with isoniazid therapy when their tubercle bacilli were sensitive. Further trials showed that the gain in weight of tuberculous patients treated with iproniazid cannot be directly correlated with the initial severity or the progress of the disease and that iproniazid therapy can also induce an increase in the weight of certain nontuberculous subjects. Similar results have not been obtained with isoniazid. The author suggests that iproniazid therapy exerts some specific effect upon appetite, and thus upon general nutrition, quite apart from its antituberculous properties and that this factor may have contributed to the relatively favorable progress of the group of patients treated with iproniazid.

Studies on Pulmonary Cancer: 5. Influence of Occupation on Occurrence of Primary Epithelial Pulmonary Tumors. L. Kreyberg. Tidsskr. norske lægefor. **75**:342-344 (May 15) 1955 (In Norwegian) [Oslo, Norway].

The new carcinogenic situation has led to increased incidence, almost exclusively in men, of pulmonary carcinomas due to irritants. The etiological factors must be sought in the milieu of work and/or the habits of life. Two hundred seventy-five cases of primary epithelial tumors of the lung, microscopically examined and typed, are tabulated in three categories according to the kind of tumor and to occupation, i. e., work in open air and housework, office and professional work, and dusty work. The fairly even distribution of group 2 tumors in the different categories supports the earlier conclusion that they occur evenly in the population irrespective of special carcinogenic milieu. The tendency to the development of tumors of the irritation group is greater in men doing dusty work than in men in the other two categories, and there is a definitely increased incidence of group 1 tumors in men engaged in office and professional work. While the results indicate that dusty work is in some degree important for the development of the special pulmonary tumors, the work itself does not afford a full explanation. There is reason to investigate other sides of men's activities, among them their habits of life, to discover, if possible, other essential factors. Theoretically, dusty work in itself need not be significant, if it is accompanied by other factors relevant to the development of pulmonary tumors.

Cleansed Cavities and Bullous Neocavities After Chemotherapy. A. Bernou and J. Brun. Presse méd. **63**:894-896 (June 11) 1955 (In French) [Paris, France].

The bullous images seen at roentgenography to persist or appear after chemotherapy of ulcerocaseous tertiary tuberculosis do not all have the same structure or origin. Those that are sequelant are of two types: finely encircled bullous cavities and sclerocystic cavities with somewhat thickened connective structure. These lesions are penetrable to Lipiodol and may simulate bronchiectasis. There are also bullous neocavities appearing at the time of retraction of the lesion; they may be located at the site of the original cavity or at some distance from it. These cavities may be cystic bronchiectasis with bronchoalveolar dilatation occurring at the time of retraction of the lesion and furthered by the consecutive sclerosis, or, more commonly, single or multiple emphysematous bullae, the pathogenesis of which is not clear. It would seem that retraction of the lesion in chemotherapy causes distention, leading to emphysematous bullae by way of compensation. The bullae appear more frequently in those portions of lung where the elastic tension has been especially dissociated and made fragile by the tuberculous process. Chemotherapy plays a part in this development in that it produces retraction of tuberculous lesions and atrophic interstitial sclerosis. Isoniazid is especially important in the latter phenomenon. A practical conclusion drawn from these considerations is that radical treatment ought not to be practiced on sequelant bronchiectasis or emphysematous bullae in the mistaken belief that they are persisting cavities. Even bullous or sclerocystic cavities are not necessarily best treated by excision, as shown by the fact that, in the authors' follow-up of 18 patients with pseudoemphysematous cavities, no relapses occurred during a period of from two to eight years.

Cortisone and Syphilis: Results of and Comments on Corticotherapy in Ninety Cases of Syphilis. P. de Graciansky and C. Grupper. Semaine hôp. Paris **31**:2141-2161 (June 20) 1955 (In French) [Paris, France].

Ninety patients with syphilis of various clinical forms were given cortisone, hydrocortisone, or corticotropin before a course of penicillin therapy. This procedure was successful in preventing or attenuating Herxheimer's reaction. It also affected the clinical manifestations of the disease. 1. Chancres stopped oozing, became softer, and rapidly epidermized. 2. Certain features of secondary syphilis were favorably influenced, but less so as they were more severe. 3. The gummas and ulcerations of tertiary syphilis were greatly benefited. 4. There was evidence to indicate that corticotherapy had an effect on the functional signs of aortic syphilis. 5. In nervous syphilis, pain resistant to other kinds of therapy yielded to cortisone. Local injections of hydrocortisone proved excellent in the treatment of four patients with tabetic dislocating arthropathy of the knee. 6. Symptomatic benefit was obtained in interstitial keratitis of late congenital syphilis. Corticotherapy had effect also on the laboratory signs of syphilis: Treponema, reagin, amboceptor, and anomalies of the cerebrospinal fluid. The normal course of syphilis after penicillin therapy was unaffected, nor was the sensitivity of Treponema organisms to penicillin altered. In patients allergic to penicillin and in pregnant patients, cortisone favors a better tolerance to the antibiotic. Its value in the severe pain and visceral paroxysms of tabes, in arthropathy, and in interstitial keratitis make cortisone an excellent adjuvant in the treatment of these forms of syphilis. Hydrocortisone appears to be the best agent to administer and is now being used routinely by the authors.

Use of Pentolinium Tartrate With and Without Hydralazine in the Treatment of Severe Hypertension. H. M. Perry Jr. and H. A. Schroeder. New England J. Med. **252**:1057-1066 (June 23) 1955 [Boston].

Pentolinium tartrate is a pentamethonium derivative in which the two terminal quaternary nitrogen atoms are included in a pyrrolidine ring rather than each being trimethylated. This substance is an autonomic blocking agent like its parent methonium compound. It is longer acting and has greater absolute effect on blood pressure, coupled with a relatively smaller effect on gastrointestinal motility, than the hexamethonium ion. Pentolinium tartrate was given orally to 30 severely hypertensive patients; 12 had received no previous effective antihypertensive therapy, 12 had shown low tolerance for hexamethonium chloride in combination with hydralazine, and 6 had manifested late toxic reactions to hydralazine after their blood pressure was well controlled by such combined therapy. The authors describe the dosage employed in each of these groups, cite illustrative case histories, and describe studies on urinary pentolinium recovery. As a chemical sympathectomizing agent, pentolinium tartrate demonstrated a limited but definite improvement over other methonium salts for some, but not for all, patients. By weight it was approximately 5 times as effective in lowering elevated blood pressure as hexamethonium chloride; ion for ion it was 10 times as powerful. Although every unpleasant manifestation of autonomic blockade was observed, there usually was relatively less parasympatholysis and hence fewer and milder untoward reactions. It was most useful in persons with very severe hexamethonium side-effects, particularly those who needed the greatest amounts of that drug for effective control of blood pressure. Unfortunately, the vasomotor instability accompanying normotension in occasional patients requiring large hexamethonium dosages was often more frequent and persistent with pentolinium tartrate. Substituted hydrazines remain unique substances without which it has been impossible to control the most severe stages of hypertension, even with enormous doses of blocking agents. When begun before the appearance of frank uremia, the combination of pentolinium tartrate and hydralazine gave satisfactory control of the worst cases of hypertension. The six patients in whom collagen disease had followed the administration of hydralazine were given pentolinium tartrate combined with other drugs, with varying results.

Occurrence of Gastric Cancer Among Patients with Pernicious Anemia at the Boston City Hospital. N. Zamcheck, E. Grable, A. Ley and L. Norman. New England J. Med. **252**:1103-1110 (June 30) 1955 [Boston].

Diagnostic index files from the general wards of the Boston City Hospital, the Outpatient Department, the Thorndike Memorial Laboratory, and the Mallory Institute of Pathology provided 1,222 names of patients with pernicious anemia diagnosed between 1915 and 1951. Observations were recorded on 658 of these patients by a group of physicians investigating the pathogenesis of pernicious anemia at the Thorndike Memorial Laboratory. Strict criteria were employed for making the diagnosis of pernicious anemia. Of the original 1,222 patients, 7 had diagnoses recorded of both pernicious anemia and gastri cancer. Only 28 of these, however, were sufficiently well documented to be accepted for this study. Twenty-one of these wer among the 658 Thorndike patients. The lesion was seen grossl at autopsy in 14 patients and at laparotomy in 11 others. Th remaining three had unequivocal clinical and x-ray evidence c gastric cancer. These studies confirm previous reports of th high prevalence of gastric cancer among patients with perniciou anemia. Depending on the sample selected, however, the fr quency of gastric cancer in the present series varied from le than 1% to more than 11%. For instance, in the Thorndik group it was 3.2%, and in the Boston City Hospital (without th Thorndike group) it was 1.2%; in 59 autopsies performed i the Thorndike group it was 11.9%, and in 108 autopsies at th Boston City Hospital it was 6.5%. The authors feel that th high rates of cancer in pernicious anemia patients justify th routine use of screening tests. The relative simplicity and a curacy of gastric cytology justify consideration of its use as screening adjunct.

Jaundice Associated with the Administration of Chlorpromazin SKF-2601-A (Thorazine): Report of Three Cases, with Biopsi of the Liver. E. R. Movitt, M. A. Meyer, A. M. Snell and othe Gastroenterology **28**:901-913 (June) 1955 [Baltimore].

The authors report three patients who sustained liver inju during the course of chlorpromazine therapy. Needle biopsi of the liver were obtained from them all; one patient was su jected to an exploratory laparotomy that failed to reveal a evidence of extrahepatic biliary obstruction. All patients r covered. The clinical picture is that of obstructive jaundice, wi elevated serum alkaline phosphatase and total serum choleste but normal flocculation tests. Histological studies reveal intr hepatic cholestasis as the most prominent feature. The autho emphasize that the possibility of chlorpromazine-induced jau dice should be entertained in all icteric patients, particular when they present diagnostic problems involving possible su gical exploration.

Problem of Late Recurrences of Malaria in Man. M. Crey J. Leng-Lévy and G. Laborie. Presse méd. **63**:877-878 (June 1955 (In French) [Paris, France].

The authors report a case of relapse of malaria with Plasm dium malariae in a 56-year-old man a week after he had unde gone an operation on the liver. He had been infected 36 yea previously in the Orient and had not had any symptoms in th intervening period. It is pointed out that, among patients wi late recurrences of malaria, there are a rare few who can tran mit the disease to others via blood transfusions. Others ha febrile bouts of malaria, and, since there is no question reinfestation in nonpaludic countries, this raises the proble of late recurrence after a long period of persistence of th original infestation in some latent form. The possibility malaria must be envisioned so that differential diagnosis can b made between paludic attacks and pseudopaludic attacks in th nonpaludic countries. Evidence from the literature is cited t show that this concept of late recurrences of malaria is consistent with present knowledge on malarial pathology.

SURGERY

Routine Supraclavicular Biopsy in Suspected Bronchiogenic Carcinoma. E. F. Skinner, J. Hall, D. Carr and S. G. Robbins. Am. Surgeon 21:590-600 (June) 1955 [Atlanta, Ga.].

Seventy male and 30 female patients between the ages of 4 and 78 years who were suspected of having bronchogenic carcinoma were subjected to supraclavicular biopsy. The results of biopsy were positive in 43 of the 100 patients. The results of biopsy were negative in 41 patients, and they were negative also in 16 other patients with such diseases as bronchiectasis or pneumonia. Thus the total incidence of negative results from supraclavicular biopsies was 57% and that of positive results 43%. This is believed to be a highly profitable ratio since even biopsy of the lungs is not always completely diagnostic. In 10 patients, the diagnosis was made clinically of bronchogenic carcinoma but was not confirmed by tissue study. None of these patients had positive results from a supraclavicular biopsy. In four instances no tissue was sent to the laboratory for examination as the surgeon did not believe that clinically important nodes were present. This was an error as sometimes small nodes contain microscopic cancer. In all patients subjected to supraclavicular biopsy the prescalene fat pad and the nodes therein should be sent to the laboratory for pathological study and also for bacteriological examination. In 18 patients no nodes were palpable, and yet results from supraclavicular biopsy were positive. In 25 patients the nodes were palpable, and the results of supraclavicular biopsy were positive. In many of the patients, the positive results of the biopsy saved the patient major surgery, as such distant metastases made surgical cure highly improbable. Of the 43 patients in whom the results of biopsy were positive, 41 had no definite diagnosis before the biopsy was done, but they had had many other clinical tests. Thus in 41 of the 100 patients the first positive cellular diagnosis was established by the supraclavicular biopsy. Biopsy of the supraclavicular nodes is helpful often enough to be used frequently or even routinely in all patients in whom bronchogenic carcinoma is suspected before major surgery is done.

Results of Pulmonary Exeresis for Tuberculoma. M. Bérard, P. Galy and E. C. Saubier. Presse méd. 63:893-894 (June 11) 1955 (In French) [Paris, France].

The authors use the term "tuberculoma" to define tuberculous foci that are caseous, altered, stratified, and of a certain volume. Eighty-two such lesions were found among 1,200 operative specimens from lung excisions performed between 1948 and 1954. Results in the 82 patients with tuberculoma were strikingly good; there was no mortality, and only two recurrences (occurring in 2 of the 12 patients with excavated lesions). Most patients returned to their previous occupations after three to six months' rest. Tuberculoma can be said to be a relatively benign form of tuberculosis, in which the lesions have a tendency to localize and organize. Owing to this defense on the part of the body, exeresis is simple and easy. To conclude from this reasoning that excision can be dispensed with altogether would be dangerous, since excavation of the lesions is always a possibility, with the attendant danger of bronchial dissemination. It is pointed out that exeresis is not so good a treatment for caseous foci that do not fulfill the requirements for diagnosis of a tuberculoma (this could only be verified at examination of the operative specimen); in a series of 136 excisions of caseous foci there were 10 recurrences.

Investigations into Thymic Disease and Tumour Formation. G. Keynes. Brit. J. Surg. 42:449-462 (March) 1955 [Bristol, England].

In 1942 Keynes was asked to perform a thymectomy on a woman with a severe, progressive myasthenia gravis. The myasthenia was arrested after the operation and ultimately abolished. Encouraged by this success, he proceeded to extirpate thymus glands from myasthenic patients, and in due course the operation of thymectomy became well established as a recognized form of treatment for myasthenia. This author is chiefly concerned with the thymic tumor, or thymoma, found in patients with myasthenia gravis, and sometimes in patients without symptoms. Of the first 11 patients with tumors operated on between April, 1942, and January, 1948, only 3 survived for more than two years and only one is known to be alive at present. Three of the 11 died postoperatively. This is in striking contrast with the general results of thymectomy when there is no tumor. Among these the postoperative mortality is 4%, and 65% of the survivors are apparently cured or nearly so. It also became plain that tumor formation was to be expected in a considerable proportion of patients with myasthenia gravis. Of 260 patients with myasthenia gravis who came to the author's attention 41 had a thymoma, an incidence of 15.4%. The author analyzes a total of 51 thymic tumors, 10 others having been contributed by four other surgeons. Twenty-two of the patients were men, and 29 were women. There is still much confusion about thymic tumors, because of the large variety of tumors that may arise in the mediastinum, the uncertainty as to which of them have really arisen from the thymus gland, and the difficulty experienced by pathologists in classifying the true thymomas. Pathologists have not made up their minds whether to call the true thymomas innocent or malignant, and the very name of lymphoepithelioma that they have commonly applied to them betrays their uncertainty. The presence of a thymic tumor is nearly always associated with severe symptoms. The response of these patients to neostigmin is slow and sometimes incomplete, so that suspicion should be aroused at an early stage. Whereas myasthenia gravis usually has a rather slow onset, rapid onset is a conspicuous feature of the myasthenia due to a thymoma. Treatment of the tumor by primary operation has proved unsatisfactory. Since 1947 the author has treated every thymic tumor diagnosed before operation by means of the million-volt machine, and a few patients in whom the diagnosis was missed have been treated very soon after operation. At present, 26 patients have been treated in this way, 21 of whom have subsequently had an operation performed. In one the tumor was not removable, and the patient died 18 months later. Of the remaining 20 patients, 4 have died, one was no better, 3 improved at first but relapsed afterwards, 8 have considerably improved, and 4 are quite well and symptomless. This is a very different result from that obtained earlier in the series with primary operation. Great accuracy of exposure to the x-ray beam is desirable to avoid injury to the lungs, so that precise localization of the tumor by preliminary radiology is essential. Tomography may be of great assistance. The total dosage, up to 4,000 r, may have to be spread over a period of four weeks or sometimes longer. During the course of the x-ray treatment the tumor, as demonstrated by radiology, can be seen to shrink and sometimes to become less opaque. While the first five thymic tumors treated by the author were not diagnosed before operation, he learned gradually what to look for in the x-ray film. In commenting on the pathological aspects, he suggests that the term malignant has been too rigidly interpreted, but he gives reasons why all of these tumors are in some respects malignant. Thymic disease and tumor formation is a complex problem.

Arterial Replacement by "Orlon" Cloth: A Preliminary Report of Its Experimental and Clinical Use. J. B. Kinmonth, G. W. Taylor and R. H. Lee. Brit. M. J. 1:1406-1408 (June 11) 1955 [London, England].

Grafts used as substitutes for arteries serve chiefly as scaffolding on which the tissues of the host develop a new vessel. Success does not depend on the survival of cells from the donor. Excellent results have been obtained in cases in which no attempt was made to maintain the viability of the cells of the graft. The use of artificial materials as arterial prostheses seems, therefore, to be logically justifiable. An inert plastic cloth, Vinyon-N, was successfully used for this purpose in 1952 by Voorhees and his colleagues, but since this material was not readily obtainable in England, the authors chose Orlon for their experiments. Mongrel or greyhound dogs were anesthetized and tubes of Orlon were used as replacements for excised segments of the distal abdominal aorta or as shunts to conduct the blood around an artificial aortic block produced by tying the aorta. All but one of the prostheses remained patent. At the time of writing four of the animals were still alive and under continuing study. Examination of the Orlon tubes at autopsy in the others showed that they become lined with smooth, glistening hyaline collagenous tissue, the innermost layer of which is indistinguishable from intima, and that they are surrounded by a thick layer of fibrous tissue, which encases and grows into the meshes of the cloth. They are well tolerated, and the fact that they retain their tensile strength is of great practical importance, because mere unsupported collagen would be expected to stretch under pressure and with the passage of time. No evidence of calcification was found on x-ray examination in any of the prostheses or their surrounding tissues. These encouraging results led the authors to use similar prostheses in three patients with severe arterial disease. One patient, who had extensive renal lesions, died of renal failure in the postoperative period. The other two were alive, and the prostheses were functioning perfectly five and six months after the operation respectively. One of these patients, who had been forced to stop work because of severe pain in the leg on walking, was able to walk three-quarters of a mile without claudication.

Importance of and Considerations on the Use of Homoplastic Arterial Grafts in Clinical Practice: Late Results in Twelve Cases. L. Provenzale. Policlinico (sez. chir.) 62:65-96 (April) 1955 (In Italian) [Rome, Italy].

Late results are reported on 12 patients in whom homoplastic arterial grafts were used to correct five coarctations of the aorta and seven tetralogies of Fallot. The use of a graft was indicated in the patients with the coarctation because the narrow portion of the vessel was unusually long or because the condition of the vessel's walls suggested that the suture might not hold. The results were encouraging in that the graft made possible a complete functional restoration because a regular arterial lumen, which often is not obtained with an end-to-end anastomosis, was reconstructed. At the time of writing, three patients had resumed their normal activities 24, 19, and 16 months, respectively, after the operation. One patient died after four months following dehiscence of the graft, and another died after nine months from causes independent of the intervention (angina pectoris). There was reason to assume that the graft had been functioning well. In the seven patients with tetralogy of Fallot the graft was resorted to because a short and narrow subclavian artery was present. A homoplastic subclavian artery was used in two patients, a hypogastric artery in four, and an artery that had been removed from the lower lobe of a lung because of multiple cysts in one. These patients were followed from 5 to 22 months. There was evidence of good functioning of the graft in six of them and indication of partial thrombosis of the graft in one. The age of the patients with coarctation of the aorta ranged from 15 to 28 years, that of the other patients from 5 to 25 years. The author discusses the problem of the supply of grafts, the most convenient methods for their preservation, and the best time for their use on the basis of his experience with the functioning of an artery bank, which was established in Rome in 1951.

The Surgical Treatment of Bleeding Esophageal Varices. R. R. Linton. West. J. Surg. 63:366-367 (June) 1955 [Portland, Ore.].

Patients with esophageal varices are in constant danger of death from massive hemorrhage. Gastroesophageal tamponage with an intragastric balloon is the best method of obtaining temporary control of bleeding, when it occurs, but it should not be continued for more than 24 hours because of the danger of ulceration and perforation of the esophagus. Discontinuance of the tamponage is often followed by recurrent hemorrhages which constitute a serious threat to life. Supplementary measures are, therefore, needed to prevent the ruptured varices from bleeding for a longer period, usually several weeks, so that the patient's general health can be improved sufficiently to permit definitive surgical treatment. The method of emergency treatment used during the last four years at the Massachusetts General Hospital has been to secure immediate control of massive bleeding by gastroesophageal tamponage; to restore the patient's blood volume by transfusions as needed; and then to suture or ligate the bleeding vessel through a transpleural transesophageal exposure. Transpleural transesophageal suture was performed 24 times as a lifesaving procedure in 23 patients, with only one operative death. Three patients died about six weeks after the suture procedure, but in the other 19 (83%), 16 of whom are still living, life was substantially prolonged. This is a great improvement over a probable mortality rate of at least 60 to 70% when conservative measures alone are used. The portal bed block responsible for the development of esophageal varices may be extrahepatic, secondary to Banti's disease, or intrahepatic, secondary to cirrhosis of the liver; in either case, the most satisfactory method of definitive treatment is the construction of a splenorenal or direct portacaval shunt. Splenectomy with an end-to-side splenorenal anastomosis is the procedure of choice in most patients. Splenectomy, however, should not be undertaken unless the surgeon is prepared to construct a splenorenal anastomosis at the same operation, because it may be his only opportunity to do so, especially in a patient with an extrahepatic type of portal bed block. Follow-up of 74 patients who survived the construction of a splenorenal or direct portacaval shunt showed that 66 (90%) were alive and for the most part in good health from one to seven years after operation. Mortality rate accompanying bleeding esophageal varices in patients with cirrhosis of the liver is higher than that in patients with Banti's disease, undoubtedly because of the serious effect produced by massive bleeding on an already damaged liver.

General Hypothermia in the Treatment of Massive Hemorrhage: Contribution to Study of Other Possibilities of Its Use in Transfusions of Blood and Substitutes. P. Goffrini and E. Bezzi. Presse méd. 63:847-851 (June 1) 1955 (In French) [Paris, France].

The authors summarize the results of their previous research, in which it was shown that dogs in hypothermia could survive and completely recover from massive, rapid exsanguination. The present series of experiments was performed on 22 dogs, 18 of which were exsanguinated under hypothermia and 4 at normal temperatures. Electrocardiograms, arterial pressures, and respiration were studied to determine the exact mechanism of death from acute anemia. The two pathological factors, hemodynamic imbalance and anoxia, play distinct and separate parts. In the first period of hemorrhage, the changes caused by emptying of the heart and great vessels can be reversed and death prevented by proper fluid replacement; but in the second phase, characterized by progressive decrease in hemoglobin level and hematocrit, there appear disturbances of conduction, excitability, and contractility of the myocardium that are due solely to anoxia. Four practical deductions are made from this work. 1. The clinical application of controlled hypothermia is of great value in the general management of patients in a state of acute hemorrhage, with respect to the consequences of anemic anoxia, though of course it is no substitute for transfusion therapy. 2. Although whole blood is the therapeutic agent of choice in acute hemorrhagic states, substitutes are useful in emergencies resulting from the use of controlled hypothermia. 3. In hemorrhagic states with particular contraindications to total reintegration of the circulating blood volume, it is possible to practice moderate application of a quantitative and qualitative replacement of the lost blood, since the body has a surprisingly high degree of tolerance to exsanguination. 4. In exchange transfusion alternate subtraction and substitution of blood in greater quantities is possible, with consequent simplification of technique and reduction of the inherent dangers of repeated insults to the circulatory equilibrium.

Surgical Management of Massive Acute Upper Gastrointestinal Hemorrhage. C. E. Welch, A. W. Allen and G. A. Donaldson. New England J. Med. 252:921-928 (June 2) 1955 [Boston].

A comparison of death rates from massive hemorrhage from ulcer, treated either medically or surgically, or in combination, in the Massachusetts General Hospital, shows a slight increase from the decade 1923 to 1932 to the present, with a rise in mortality from 13 to 17%, that is, the general death rate from bleeding ulcer has not diminished but has slightly increased, despite a much wider use of surgical treatment. The authors do not believe, however, that early surgical treatment should be abandoned, because this increased mortality is due chiefly to the increasing age of the hospital population and various postoperative complications due to technical errors. Any mortality study of massive hemorrhage must take into account the age distribution of the patients treated. The mortality of all patients treated by either medical or surgical methods ranged from 7% in those under 50, to 29% in those 70 years of age or over. Nevertheless, individual analysis of patients over 80 years of age revealed that they tolerate early surgical treatment better than expectant treatment. The authors believe that a continued lowering of mortality will depend on prevention of postoperative complications and on earlier surgical treatment of patients with massive hemorrhage who are over 60 years of age. The pulmonary complications are the most important cause of the rather high mortality. The most common type of pulmonary complication is aspiration pneumonia. The factors necessary to produce it are a full stomach, or one with an incompetent cardiac sphincter, and depression of the cough reflex. The first of these may be counteracted by keeping the stomach empty during the early postoperative period. Decompression of the stomach can be obtained by the Levin tube, but the authors use a catheter introduced in a retrograde fashion through the efferent jejunostomy loop into the stomach, as described by Allen and Donaldson. This will allow much better clearing of the respiratory tree than can occur when the pharynx is continuously irritated by the Levin tube. Furthermore, this catheter can be tolerated much better and longer than a nasal tube. This technique is especially valuable in elderly, depleted, and very ill patients. Some postoperative deaths have been due to a summation of minor complications. Electrolyte imbalance is another important factor. Continued aspiration of gastric contents and replacement therapy, with intravenous administration of dextrose in isotonic sodium chloride solution may produce a hypochloremic hypokaliemic alkalosis, which may result in death. Replacement of potassium is the most important feature in the prevention of this syndrome. These and other methods designed to prevent postoperative complications were used in 55 patients with hemorrhage from gastric ulcer, and 53 recovered.

Subtotal Versus Total Gastrectomy for Gastric Malignancy: With a Discussion of the Various Technics Advocated in the Operation of Total Gastrectomy. C. J. Hunt. West. J. Surg. **63**:337-343 (June) 1955 [Portland, Ore.].

Total gastrectomy, which is almost certain to be accompanied by a higher operative mortality rate than radical subtotal gastrectomy, should not be generally adopted as the standard surgical treatment for cancer of the stomach. The results will usually be just as good, and many of the disagreeable consequences of total gastrectomy will be avoided, in patients with distal gastric lesions, if an extensive lymphatic dissection is combined with a radical subtotal gastric resection in which a remnant of the fundus is left to serve as a food pouch. Total gastrectomy, however, should be used more frequently for lesions in the midportion of the stomach, and it is certainly indicated for all lesions in the upper half of the stomach, for carcinoma of the linitis plastica type, and when it is necessary for the removal of all accessible cancer. Attempts have been made to overcome the undesirable effects of the operation in a number of ways. A Roux-Y procedure has been used to divert the duodenal contents and so prevent reflux esophagitis, and various segments of the intestinal tract have been transplanted to take the place of the stomach in the hope of maintaining the normal flow of the food content by way of the duodenum. The use of any part of the colon for this purpose is physiologically and anatomically undesirable, because the right colon is an absorptive structure for fluids and the transverse colon, when transplanted, is in an antiperistaltic position in relation to the esophagus and the duodenum. The author, therefore, advocates the use of the jejunum as the best available substitute for the stomach in attempting to overcome the disadvantages of total gastrectomy. His technique consists in using the Roux-Y procedure with the upper jejunum and at the same time constructing a food pouch out of the distal segment of the jejunum. It has been used after total gastrectomy with no operative mortality and excellent results in seven consecutive patients, all of whom have had capacity for a good food intake without discomfort. Few patients who require total gastrectomy can be cured, and in none of these cases was a cure expected. All the patients gained weight, however, and none had any evidence of a dumping syndrome; on the contrary, x-ray films showed an unhurried progressive emptying rate.

Treatment of Chronic Relapsing Pancreatitis. F. L. Coffey, G. F. Woelfel, K. J. David and M. G. Burdette. Am. Surgeon **21**:569-576 (June) 1955 [Atlanta, Ga.].

Thirteen patients, aged 29 to 62 years, with chronic relapsing pancreatitis were treated by celiac ganglionectomy and bilateral splanchnicectomy, with or without sphincterotomy and biliary surgery. In the routine supragastric approach, the gastrohepatic ligament was entered just to the left of the portal vein. The crux of the diaphragm and the aorta at the level of the celiac axis were identified, exposing the celiac ganglions that surround the axis. The greater and lesser splanchnic nerves were isolated as they pass through the crux of the diaphragm to enter the ganglions. Both ganglions were removed by blunt and sharp dissection and the splanchnic nerves were cut 2 to 5 cm. proximal to their entrance into this sympathetic plexus. A different surgical approach to the celiac ganglions, i. e., the retroduodenal-retropancreatic, was devised for use in obese patients and those with a short gastrohepatic ligament, high-lying pancreas, or short celiac axis. In these patients, the lateral peritoneal reflection of the second portion of the duodenum was incised, and the duodenum and adjacent pancreas were rotated anteriorly and to the left, exposing the underlying vena cava and the right renal vein and artery. As the structures were rotated medially, the aorta, the right suprarenal gland and vessels, and the right celiac ganglion were exposed. It is of prime importance to remove all ganglionic tissue with a portion of the splanchnics to insure complete relief of pain, because the celiac ganglions also receive branches from lumbar nerves 1, 2, and 3. Often the superior mesenteric ganglions also are removed to insure relief. Of the 13 patients, the first was operated on two years ago and the last two were operated on a few months ago. It is still too early to evaluate the results in the last two patients. Of the other 11 patients, 9 had complete relief of symptoms, one had partial relief, and one was a therapeutic failure. Two of the nine patients had been in various hospitals over a period of three years and were branded neurotics; they now have been completely free of symptoms since operated on by the authors. Two of the patients showed calcification of the pancreas and six others had biopsies that showed chronic pancreatitis. In patients with obvious chronic pancreatitis, biopsies were not performed because of the added dangers of hemorrhage and formation of fistula. The rationale of the authors' surgical procedure in the management of chronic pancreatitis is: (1) all pain fibers to the pancreatic area, duodenum, and biliary tract have been interrupted by the splanchnicectomy; (2) by celiac ganglionectomy and splanchnicectomy, spasms of the sphincter of Oddi and of the vessels supplying the pancreas have been relieved; and (3) by the splanchnicectomy the blood supply to the pancreas is increased, aiding healing of the organ. Celiac ganglionectomy and bilateral splanchnicectomy, with the correction of biliary disease, if it is present, are effective in treating chronic relapsing pancreatitis, and warrant further investigation.

Prophylaxis of Thromboembolism with Anticoagulants, Particularly Marcoumar. H. J. von Brandis. Chirurg **26**:241-244 (June) 1955 (In German) [Berlin, Germany].

Three men between the ages of 21 and 64 years, who sustained a pulmonary infarction before they underwent a major abdominal operation or between two abdominal surgical interventions that followed one another within a short interval, were given a synthetic heparin preparation (Thrombocid) for three days. On the fourth day treatment with 3-(1-phenylpropyl)-4-hydroxycoumarin (Marcoumar) was started. The first patient had carcinoma of the lesser curvature of the stomach and was operated on three weeks after the pulmonary infarction. The postoperative course was uneventful while prophylactic treatment with Marcoumar was continued. There was no recurrence of embolism, and the patient was discharged in good condition four weeks after the surgical intervention. The second patient had carcinoma of the rectum, and in preparation of a sacroabdominal resection a double current transverse anus was formed in a first-stage intervention. Pulmonary infarction occurred on the 19th postoperative day, immediately before the planned second-stage intervention. The patient was given heparin for three days, and Marcoumar therapy was started on the fourth day. The sacroabdominal amputation was performed on the 33rd day after the infarction. The postoperative course was uneventful, there was no recurrence of the infarction, and the patient was discharged seven weeks after the second surgical intervention. The third patient had appendicitis, was operated on, and sustained a pulmonary infarct on the seventh postoperative day. He was given heparin, and Marcoumar therapy was started on the fourth day. On the ninth day after the infarction a classic strangulation ileus developed that required repeated laparotomy. Marcoumar therapy was discontinued at the time of the operation but was resumed on the fifth postoperative day with cautious regulation of the coagulation values on a median level by small doses of Marcoumar. The patient was discharged on the 17th day after the ileus operation. No embolism recurred. The occurrence of embolism in these three patients emphasizes the difficulty of evaluating surgical patients with regard to the risk of embolism and the necessity of general prophylaxis of thromboembolism. Marcoumar therapy represents a definite progress in this regard as compared with bishydroxycoumarin (Dicumarol) treatment. The selection of patients is done with careful consideration of the function of the liver. Marcoumar therapy is contraindicated in older patients with lesions of the liver and the adrenals or with vascular lesions and in many patients with diseases of the gallbladder and the biliary tract, although in them the risk of thromboembolism is high. Continued control of the blood coagulation values is essential, which makes anticoagulant therapy difficult in small hospitals. Marcoumar prophylaxis can be omitted if examination of the blood coagulation values before the institution of therapy shows delayed coagulation values and low Quick values, respectively. Intensive prophylactic treatment with Marcoumar is indicated in cases with markedly low coagulation values and simultaneous high Quick values.

Vena Cava Inferior Ligation in Congestive Heart Failure: Report on 100 Cases in Five Years. J. Bernath, R. Guillemot, P. Samuel and R. Heim de Balsac. Am. Heart J. **50:**112-128 (July) 1955 [St. Louis].

R. Heim de Balsac has used ligation of the inferior vena cava for the treatment of congestive heart failure since 1949, and since then a large number of patients have received this treatment at the Centre de Broussais in Paris. In this paper the authors review the first 100 patients operated on between April, 1949, and November, 1953. Immediately after the operation, the patient breathes more easily, hepatomegaly regresses, and peripheral edema disappears. However, postoperative complications are frequent. Edema of the lower extremities occurs in the presence of old preexisting inflammatory changes in the veins. The dietetic restrictions for cardiac patients must be continued after the operation. The chief indications for ligation of the vena cava are mitral and combined mitral and aortic disease, particularly in patients in whom rheumatic activity has ceased. Cardiac disorders without valvular lesions and arterial hypertension are also acceptable indications, but the experience of the authors is too limited to assess the results of this operation in congenital heart disease. Absolute contraindications to this operation are cardiac disorders with high output, such as chronic cor pulmonale and thyrotoxicosis, as well as certain valvular lesions, such as advanced aortic stenosis, in which the circulation is greatly restricted. The authors avoid the operation in patients in whom the cardiac lesion is progressive, which is especially likely in patients less than 30 years of age. The mortality was particularly high during the first year after operation (23%). Deaths at this time are partly due to the continuation of cardiac degeneration and partly to vascular accidents. Ligation of the inferior vena cava has no effect on attacks of rheumatic fever or on cerebrovascular accidents. The survival rate after the first year was 60%, after the second 49%, after the third 40%, and after the fourth and fifth years 33%. These values are somewhat distorted by the fact that in the beginning the surgical mortality was excessively high (20% in the first 50 patients, compared with 6% in the second group of 50). The duration of the improvement depends on whether the patient follows the prescribed medical diet, on the changes in his cardiac lesions, on his liver function, on his preoperative kidney function, and on the rapidity with which collateral circulation is established. The last factor appears to destroy the beneficial effects of the operation; cardiac insufficiency reappears and the patient returns t a status similar to that which obtained prior to operation. Nevertheless, ligation of the inferior vena cava seems a satisfactor palliative treatment of intractable cardiac insufficiency, particularly when accompanied by the threat of pulmonary emboli The results corresponded to those obtained by other majo palliative surgical procedures. The authors feel that the functional improvement achieved and the prolongation of life justif the operative and postoperative risks to the patients.

The Significance of Nodular Goiter. J. C. McClintock. Virgini M. Month. **82:**299-301 (July) 1955 [Richmond, Va.].

Of 1,098 patients with nodular goiter operated on by th author between 1949 and 1953, 843 had nontoxic nodular goit and 255 had toxic nodular goiter. Of the 843 with nontoxi nodular goiter, 347 had single nodules, and cancer was fir diagnosed by the pathologist in 27 (7.7%) of these. Four hu dred eighty-six patients had multiple nodular goiters, and canc was first diagnosed by the pathologist in 12 (2.4%). In only patients with nontoxic nodular goiter was a preoperative dia nosis of cancer made and confirmed by pathological examin tion. Of the 843 patients with nontoxic goiter, 614 (73%) h noted or complained about the neck swelling. Two hundr eighty-six (34%) of the 843 patients had mechanical or obstru tive symptoms. Of the 255 patients with toxic goiter, 25 (9.8 had already developed cardiac decompensation and/or auricul fibrillation at the time they were first examined by the auth The damage so produced in even a few patients would ha been avoided by removal of the goiter while it was still in t relatively innocuous nontoxic state. Although among the patie with nodular goiter there were no postoperative deaths, a to of 1,578 thyroidectomies for all types of goiter in all age grou were performed by the author in the course of the same f year period with only one death, and that was caused by cereb hemorrhage. As long as the risk of cancer greatly exceeds risk of surgery, conscientious physicians have no choice but advise excision for nodular goiter.

Comparative Results of Primary Segmental Resection and section After Pneumothorax. A. Marmet, M. Jaubert de Be jeu, G. Weill and others. Strasbourg méd. **6:**302-307 (May) 1 (In French) [Strasbourg, France].

Segmental resection of the lung was carried out in 100 tients with pulmonary tuberculosis, in 30 of whom the indi tion for surgical treatment was unsatisfactory pneumothor Good results were obtained in 97% of the patients with pneumothorax as against 87% of those with pneumothor None of the former patients had incomplete results, while 3.5 of the latter did. In the first group 3% of the patients had p results, as compared with 10% in the second group. Pneum thorax may make the pleura rigid and difficult to free. It m cause fibrous adhesions in the pedicle. It may have an eff on the fibroelastic system of the lung. It may even cause so active lesions to appear dormant. These effects interfere w the success of operation. Postoperatively, complete reexpansi may be difficult and slow in patients with pneumothorax, as was in 43% of the 30 patients in this series, as compared w 17% of the other 70. New bouts of tuberculosis are more f quent in patients who have had pneumothorax. In every pati with tuberculosis an effort should be made from the time he first observed to determine whether the nature of his lesions such as might require resection at some time. If so, pneum thorax is contraindicated. In borderline cases, pneumothor may be tried for not longer than six months but should be aba doned if success is not promptly obtained.

Prognosis of Bronchiectasis After Surgical Resection. R. Ginsberg, J. C. Cooley, A. M. Olsen and others. Surg., Gyne & Obst. **101:**99-102 (July) 1955 [Chicago].

This study was designed to evaluate the results in 255 cas of bronchiectasis treated surgically at the Mayo Clinic in th years 1942 through 1953. Each patient was studied bronch scopically, bronchographically, and pathologically. Acceptab follow-up was possible in 221 of the 255 patients, and the

221 form the basis of this report. These patients had primary bronchiectasis. All cases of bronchiectasis secondary to known foreign body, tuberculosis, tumor, broncholithiasis, or bronchostenosis were excluded. The surgical technique usually consisted of endotracheal anesthesia, posterolateral thoracotomy, individual ligation of hilar structures, and closed temporary intercostal drainage. In selected cases, antibiotics were instilled into the pleural cavity. Postoperatively, antibiotics were used in most cases. Oxygen therapy, blood transfusion, and fluids by vein were used as indicated. The postoperative retention of secretions is to be treated vigorously, and bronchoscopic aspiration is therefore often resorted to. As a result the complete picture of postoperative atelectasis is rarely seen. The authors found that the prognosis for surgical bronchiectasis is good. In this series, 75% of the patients obtained a good result, 21% had a fair or poor result, and 4% died. Residual disease is one of the factors that influences the prognosis adversely. This is the case particularly when it is ipsilateral. New bronchiectasis is usually associated with an unfavorable result, and the progression of residual bronchiectasis probably accounts for a number of unfavorable results. While postoperative complications do not preclude an excellent result, they seem to reduce greatly the chance of obtaining one.

Carcinoma of the Breast: The Status of Present Therapy with Special Reference to a Case Treated by Bilateral Adrenalectomy and Oophorectomy. W. Girdwood and A. L. Jackson. South African M. J. 29:557-562 (June 11) 1955 [Cape Town, South Africa].

Girdwood and Jackson show that radical mastectomy has come into disrepute because it has been used indiscriminately, often in patients whose disease is beyond the reach of the surgeon. The argument in favor of the less extensive or the more radical procedure is dissolved if one definitely classifies cases of carcinoma of the breast as operable or inoperable. The stages described by various authors have not been uniform. The authors suggest a new method of staging and show that, with the concept of hormone-dependent tumors the value of hormone treatment and oophorectomy, or oophorectomy plus adrenalectomy or hypophysectomy, must be considered in relation to the practical clinical problem. Permission must always be obtained before operation so that, if microscopy shows numerous mitotic figures, oophorectomy may be performed at the same time as mastectomy. In all cases deep x-ray therapy should follow mastectomy. In the inoperable group there is possibly some advantage in preoperative deep therapy followed by mastectomy and bilateral adrenalectomy. The authors cite the case of a 51-year-old woman with breast carcinoma and osseous metastases who experienced dramatic improvement with healing of bone lesions after bilateral oophorectomy and adrenalectomy. The primary growth was an undifferentiated carcinoma, a type regarded by some authors as less amenable to this form of treatment. The progress and rationale of endocrine therapy are discussed, and reference is made to hypophysectomy in the treatment of breast carcinoma.

Diagnosis of Masked Pheochromocytomas. W. Mandl. Wien. med. Wchnschr. 105:516-518 (June 25) 1955 (In German) [Vienna, Austria].

Three illustrative cases of masked chromaffinoma (two of masked pheochromocytoma in a 28-year-old woman and a 51-year-old man and one of masked pheochromoblastoma in a 49-year-old man) are described. The terms masked pheochromocytoma and pheochromoblastoma were considered highly suitable because of the presence of atypical symptoms and the absence of typical symptoms in the patients. The woman was admitted to the surgical department of the general hospital of Steyr, Austria, with a diagnosis of cholecystitis. Laparotomy revealed a normal gallbladder but a tumor of the adrenal, which was removed. Intraoperative palpation of the tumor did not cause any increase in blood pressure. Pathological examination of the specimen showed a malignant pheochromocytoma. Reviewed history revealed that the patient as a child had had sensations of heat in the head, redness of the face, tinnitus, and tremor of the hands but these symptoms subsided later on: It appears that the originally typical pheochromocytoma had lost its functional activity after the occurrence of malignancy. If the history had been recorded the first time in an exact manner, a tentative diagnosis of pheochromocytoma could have been made. A duodenal ulcer was suggested by the roentgenologic findings in the 51-year-old man who had abnormal pigmentation of the skin and of the buccal mucosa. Laparotomy revealed a large duodenal ulcer and in addition a tumor of the left adrenal, exploration of which caused systolic blood pressure to rise to 300 mm. Hg. The history did not reveal any subjective symptoms that could have suggested an increase in blood pressure, but later it was discovered that on the occasion of an internal examination a blood pressure of 210/110 mm. Hg had once been measured. The third patient had been hospitalized repeatedly for indefinite upper abdominal pain, but an increase in blood pressure had not been determined. An attack of severe, refractory pain prompted a laparotomy, which revealed a left adrenal tumor that could not be removed because of rapid deterioration of the patient's general condition. Postoperatively extreme sweating of the upper part of the body was observed and the history revealed that hyperhidrosis after the slightest physical and mental exertion had been observed for years. The term atypical pheochromocytoma or pheochromoblastoma was coined for chromaffinomas that are associated with permanent hypertension. The author's cases showed that there are patients in whom hypertension is not present as the guiding symptom or in whom hypertension may not be notable. The term masked pheochromocytoma or pheochromoblastoma, therefore, seems to be appropriate for all nontypical pheochromocytomas or pheochromoblastomas. A tentative diagnosis of chromaffinoma should be considered when only isolated symptoms of the adrenosympathetic symptom complex are present.

The Treatment of Duodenal Ulcer by Vagotomy and Gastro-Jejunostomy. R. L. Holt and A. F. Robinson. Brit. J. Surg. 42:494-502 (March) 1955 [Bristol, England].

The combination of vagotomy and gastrojejunostomy was selected for several reasons, not the least of which was the desire to use the simplest and safest operation on the stomach, so that it could be performed by surgeons of relatively limited experience. From this point of view, gastrojejunostomy appeared to be preferable to pyloroplasty and gastric resection. It had the added attraction that by itself it gives good results in the treatment of duodenal ulcer. Its only serious drawback is that it may be followed by stomal or jejunal ulceration, a complication brought about by the persistent secretion of highly acid gastric juice in the duodenal ulcer patient. This secretion is known to be largely neurogenic in origin and is abolished by vagotomy, so that on theoretical grounds the combination of these two measures appears to be sound. The results reported are those from a conservative series of 243 patients operated on between October, 1947, and July, 1953. During this period all patients with duodenal ulcer referred to the senior author for surgical treatment were treated by vagotomy and gastrojejunostomy except for those who required emergency operations for perforation or hemorrhage. There was only one death in the 243 patients. This patient died three days after operation as a result of continuous diarrhea, cholera-like in its severity, that would not respond to treatment. Analyzing three-year results in 110 patients the authors found that 87% had satisfactory and 13% had unsatisfactory results. They feel that it is a method worthy of consideration. Since it has a low mortality, an absence of serious postoperative complications, and a high proportion of satisfactory results, an increasing number of surgeons recommend this treatment for duodenal ulcer.

A Three to Seven Year Postoperative Evaluation of 76 Patients with Severe Hypertension Treated by Thoracolumbar Sympathectomy. H. A. Zintel, A. M. Sellers, W. A. Jeffers and others. Surg., Gynec. & Obst. 101:48-54 (July) 1955 [Chicago].

The 76 patients on whom this report is based were subjected to thoracolumbar sympathectomy between 1947 and 1951 and were followed up for a minimum of three and a maximum of seven years postoperatively. The patients were operated on for one or more of the following indications: (1) an average diastolic pressure of 120 mm. Hg or more, (2) failure to respond to intensive medical therapy, and (3) evidence of progressive damage to the heart, kidneys, brain, or eyes. Surgery was considered to be contraindicated if: (1) the patient was over the age of 55 years, (2) the patient had been recovering from a stroke or coronary occlusion for less than six months, or (3) the patient had impaired renal function as evidenced by a blood urea nitrogen of over 20 mg. per cubic centimeter or a phenolsulfonphthalein excretion of less than 20% in the 15 minute specimen. A diastolic pressure of 140 mm. Hg or higher was not considered to be a contraindication. Various members of the Hypertension Clinic of the Hospital of the University of Pennsylvania had decided that the patients subjected to operation could not have been helped by any of the types of medical therapy available at the time of operation. One patient died during the postoperative period, and 53 patients are surviving at present, that is, the over-all mortality was 30% in three to seven years. Of the living patients 55% had an excellent or fair blood pressure response. Among the 53 survivors, relief of congestive failure has been obtained in 88%, and of angina pectoris and headache in 93% each. Progressive impairment of renal function has been infrequent. Definite improvement in renal function has not occurred. The survival rates including the operative mortality have been slightly better than those reported by Smithwick, but the data regarding survival indicate that thoracolumbar sympathectomy does extend the life of the patient beyond the length of life that can be expected following nonoperative types of therapy.

Results of Surgical Treatment of Ulcer on Basis of Five-Year Study. N. Blixenkrone-Møller. Nord. med. **53**:837-842 (May 26) 1955 (In Danish) [Stockholm, Sweden].

During the five-year period ending in 1950, 328 patients were treated operatively for duodenal ulcer, gastric ulcer, both ulcer forms simultaneously, cicatricial pyloric stenosis without apparently active ulcer, and peptic ulcer after earlier resection or anastomosis. The results are known in 325 cases. The time of observation was at least four years. Gastric resection, considered the method of choice in gastric or duodenal ulcer, was performed in 152, or 75%, of the 203 cases of duodenal ulcer and in 80, or 95%, of the 84 cases of gastric or gastric and duodenal ulcer, with seven deaths, or 4.3%. The result was fully satisfactory in 40% of the patients; 33% have to avoid certain foods; milder or more severe postcibal distress occurs in 17%; and the remaining 10% have various complaints. In some cases with densely adherent and inflamed duodenal ulcer, gastroenterostomy in combination with vagotomy was done, the results comparing favorably with those after resection. After gastroenterostomy for cicatricial pyloric stenosis in 20 cases, with four deaths, gastrojejunal ulcer developed in two instances. Vagotomy seems to be the method of choice for gastrojejunal ulcer after gastroenterostomy or gastric resection; the operation calls for meticulous care. No reason is seen for changing the operative indications for ulcer. If a patient with duodenal ulcer has had severe symptoms for a couple of years or if two series of treatments for ulcer have been without lasting effect, operation is indicated. In gastric ulcer, operation is called for sooner, not least because of the danger of cancer. If operation is deferred until pyloric stenosis sets in, the results are less favorable.

The Diagnosis of Orthopedic Lesions by Aspiration Biopsy: Results of 1,061 Punctures. C. E. Ottolenghi. J. Bone & Joint Surg. **37-A**:443-464 (June) 1955 [Boston].

If the nature of an osteoarticular lesion cannot be clarified by clinical or roentgenographic examination, Ottolenghi favors biopsy, either by the open method or by aspiration. He reviews his experiences in 1,061 aspirations carried out on 998 patients. The technique employed is that used in the Memorial Hospital in New York. Syringes with metal sleeves or at least metal tips should be used; needles should be 2 mm. in diameter, very acutely beveled and sharp; they should be fixed to the syringe as hermetically as possible. Puncture of the skin should be made with the point of a scalpel. In sclerotic lesions there is a high proportion of failures. Aspiration is made after a vacuum has been produced in the syringe by withdrawal of the piston. Punctures were made in nearly all of the bones of the skeleton, wit the exception of those at the base of the skull and the vertebra between the 1st and the 10th thoracic. The results were con sidered positive when the diagnosis could be established, doubt ful when the diagnosis could not be confirmed and had to b verified by some other means, and negative when the diagnosi could not be made. Of the 1,061 aspirations 895 gave positive 45 doubtful, and 121 negative results. A table, which lists 87 positive diagnoses confirmed by open biopsy, by surgical e posure of the lesion, or by the clinical course, shows that th majority of diagnostic aspiration biopsies were made for malig nant tumors. The method is simple, carries no risk to the pa tient, and does not exclude other methods of diagnosis. It i particularly useful in deep locations such as the vertebral bodie or the pelvis.

Surgical Treatment of Spondylolisthesis Without Spine Fusio Excision of the Loose Lamina with Decompression of the Ner Roots. G. G. Gill, J. G. Manning and H. L. White. J. Bo & Joint Surg. **37-A**:493-520 (June) 1955 [Boston].

The prevalent concept of the cause of symptoms in spond lolisthesis is based upon the belief that, because of the defe in the pars interarticularis of the fifth lumbar vertebra, there instability at the lumbosacral junction and thereby a tenden for progressive forward slipping of the vertebral body. Fusi has been the accepted treatment. The concept of instabili however, fails to explain the clinical course often seen in the patients. The authors observed a young woman in whom a seve sciatica developed following a hyperextension injury. The x-ra showed a first-degree spondylolisthesis. A herniated disk w suspected but not found on exploration of the fifth lumb interspace; however, it was noted that on hyperextensi the mobile lamina of the fifth lumbar vertebra rocked distal causing traction on the first sacral nerve roots. For this reas the fifth lumbar lamina was excised and a lateral fusion w performed. The patient had considerable relief of the low extremity pain. Shortly thereafter another patient with spond lolisthesis was seen, with sciatic radiation and with eviden of compression of the fifth lumbar root. On removal of t mobile lamina of the fifth lumbar vertebra, the fifth lumb root was seen to be compressed by a mass of fibrocartilagin tissue at the defect in the pars interarticularis of the fifth lu bar vertebra. After decompression of the roots by removal the fibrocartilaginous mass, a lateral fusion was perform There was immediate relief of the sciatic pain and of the neu logical symptoms. A third patient with a similar condition w treated in an identical manner with relief. Meanwhile, in t second patient local back pain again developed, as well coccygodynia and pain in the lower extremities associated w tightness in straight-leg raising. Reexploration showed that t bone grafts had slipped medially, causing formation of adhesio of bone to the dura. Because of this complication, and on t basis of limited experience with excision of the inferior articu processes without fusion in arthritic patients, it was decided th in the next patient a decompression procedure alone should done and later, if necessary, a lateral fusion could be perform with greater safety. This operation was first performed on physician in June, 1950. There was relief of the pain both the back and in the lower extremities, and the patient resum full activity in three weeks. Since then, in 18 cases surgery h consisted solely of removal of the loose lamina with compl decompression of the fifth lumbar and the first sacral roots. five other cases, in which fusion operations had failed to res in either fusion or relief of symptoms, excision of the fusi mass and of the inferior articular process with decompressi of the roots has given relief. In one other case, despite a co ventional and solid fusion, the symptoms persisted until t fibrocartilaginous mass was removed. Surgical exploration co sistently revealed the presence of a fibrocartilaginous mass the defect in the pars interarticularis of the fifth lumbar vertebr in some instances this was larger on one side than on the othe but it corresponded in general with the neurological finding The authors show that their concept of the pathomechanics this condition answers all that is not explained by the preval concept of instability at the lumbosacral junction.

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Dihydroergotamine in Treatment of Trigeminal Neuralgia. K. Decker. Deutsche med. Wchnschr. 80:887-889 (June 10) 1955 (In German) [Stuttgart, Germany].

While studies on the pathogenesis of trigeminal neuralgia, which the author carried out in 1948 and 1949, provided no new viewpoints, interesting therapeutic observations were made. The trigeminal pain disappeared or subsided in some patients while they were being treated with dihydroergotamine, but all attempts to elucidate the mode of action of this drug failed. When Simon in 1949, and Bodechtel in 1950, described favorable results with dihydroergotamine in trigeminal neuralgia, the author followed the further fate of his patients. Fifty patients who had been treated with dihydroergotamine could be reached in 1953 to 1954 for a follow-up inquiry. These patients had trigeminal neuralgia with typical attacks of tic douloureux. The ages of the 27 men and 23 women ranged from 40 to 75 years. At the onset of treatment the pain had existed for an average of four years, but all patients had been temporarily free from attacks, possibly as the result of treatment with vitamin B, with antirheumatic measures, or with roentgen irradiation; also foci of infection had been removed from the teeth or the sinuses; and removal of a branch of the nerve, coagulation of the ganglion or blockage of the sympathetic had been performed in some of the patients. The dihydroergotamine therapy was begun with 5 drops given three times daily and was increased by one drop given three times daily until the daily dose reached a maximum of 20 drops three times a day. Increase in dosage was stopped at levels at which the pain showed improvement, was continued at this level for from two to four weeks, and was then gradually reduced. Treatment was continued for an average of two months. The pains disappeared in 24 patients after the first treatment, but a year later only 10 patients were still free from pain, and after four or five years only four patients were still free from pain. The author concludes that about one third of the patients experienced prolonged relief from trigeminal neuralgia once or several times as the result of treatment with dihydroergotamine.

Results of BAL Therapy in Vascular and Inflammatory Neuropathies: Clinical Contribution on Twenty-Five Cases. G. Romualdi and L. Calabrese. Clin. terap. 8:282-299 (March) 1955 (In Italian) [Rome, Italy].

BAL (2, 3-dimercaptopropanol) was used in the treatment of 4 patients with polyneuritis or neuritis of alcoholic, toxic, or diabetic nature, 14 with post-thrombotic encephalomalacia and cerebrospinal arteriosclerotic syndrome, 5 with encephalomyelitis, and one each with multiple sclerosis and chronic progressive external ophthalmoplegia of long standing. This is the first report in the world's literature on the use of BAL in the treatment of cerebral thrombosis and diffuse cerebrospinal arteriosclerosis. The drug was given in daily doses of 0.1 to 0.2 gm. for total doses ranging from 1 to 9.9 gm. in one or more courses of treatment. There were no side-effects, and the renal function and the blood picture were not altered. The conditions treated benefited regardless of whether the origin of the damage to the nervous cell was vascular or inflammatory. Complete resolution of the motor paralysis was obtained in three patients, and good results (without complete recovery) were obtained in one patient with polyneuritis or neuritis. The results were satisfactory in six and fair in four patients with post-thrombotic encephalomalacia and cerebrospinal arteriosclerosis, whereas the condition remained unchanged in four patients of this group. Of the five patients with encephalomyelitis, three improved and the improvement was still present 5, 6, and 18 months later respectively. One patient benefited slightly and one not at all. Improvement was still present in the patient with multiple sclerosis three years after the therapy was carried out. Ptosis diminished, and active motility of the eyelids became almost normal in the patient with the eye condition in whom all previous therapies had been of no avail. The improvement was still present after 90 days. Although spontaneous recovery is possible in all neurological conditions, there was evidence that BAL did influence the condition of most of these patients, acting if not as the determining factor at least as the factor that speeded up improvement and recovery. As a rule, the sooner the therapy was instituted after the onset of the condition, the better the results. It is suggested that BAL be combined with anticoagulant (heparin) therapy when used to treat cerebral thrombosis of recent onset.

Complications of Chlorpromazine Therapy in 800 Mental-Hospital Patients. J. Lomas, R. H. Boardman and M. Markowe. Lancet 1:1144-1147 (June 4) 1955 [London, England].

This report is based on 800 patients, 260 men and 540 women, treated with chlorpromazine. The patients were not questioned about any untoward effects; hence any complications noted were either a result of spontaneous complaint by the patients or observed by the nurses and doctors. Though all types of mental disturbances were treated, the great majority of patients had acute or chronic psychoses. The dosage varied, but the most commonly adopted plan was to start with 150 mg. daily and to increase rapidly to 300 mg. daily. The less seriously disturbed patients received smaller doses, and a few patients had their dosage increased to 800 mg. daily. The duration of treatment varied from a few weeks to several months. The great majority of patients received the chlorpromazine orally and received ambulatory treatment from the start. A minority underwent electroconvulsion therapy concurrently, and most patients were receiving barbiturate sedation. No other form of therapy could account for the toxic reactions. The authors divide the complications into side-effects and toxic reactions. The side-effects were: tachycardia, hypotension, dryness of mouth, constipation, nausea, vomiting, frequency of micturition, Parkinsonian-like syndrome, and local irritation at the site of injection. Both subjective complaints and observed disturbances were much less common in disturbed psychotic patients than in others, and the more chronic the psychosis the less was the incidence of side-effects. Hypotension is the only one of the side-effects requiring special precautions and then only in the aged and those with cardiovascular dysfunction. Of the 59 toxic reactions (7.4% of the 800 patients), 48 occurred among the 540 women (8.9%) and only 11 among the 260 men (4.2%). The toxic manifestations were: jaundice, blood dyscrasias, skin reactions, edema, pyrexia, and epileptic fits. Jaundice and blood dyscrasias may prove fatal and are absolute contraindications to continuing treatment with chlorpromazine. Previous liver dysfunction may predispose to jaundice and therefore should also be regarded as a contraindication to such treatment. With the exception of epileptic fits, the time of occurrence of all toxic manifestations had a definite relationship to the duration of treatment but not to the dosage at the time or to the total dosage of chlorpromazine. In view of this finding and the occurrence of eosinophilia in some cases, the toxic reactions are probably due to sensitization. Epileptic fits occurred mainly in postleukotomy patients, and in only one case were no predisposing factors detected. Therefore chlorpromazine may have epileptogenic properties that may cause manifest fits in susceptible people.

Extracellular Hyperosmolarity After Cerebral Lesions. P. Anthonisen, T. Hilden and A. C. Thomsen. Nord. med. 53:713-718 (May 5) 1955 (In Danish) [Stockholm, Sweden].

Attention is called to a symptom complex originating after cerebral injury and consisting of high serum values of chloride and sodium and slight elimination of these ions. The 46 cases of the syndrome published since 1937 are tabulated. The cerebral lesions are of widely different kinds including contusions, vascular catastrophes, tumors, encephalitis, postoperative sequels, insulin shock, and sulfathiazol intoxication. Most of the lesions in question are in the frontal lobes, hypophysis-hypothalamus region or both. The following hypothesis is set forth: A cerebral lesion of the osmoregulating mechanism causes dehydration, tending to a reduction of the organism's water content and reduction of the blood volume. This will stimulate the normal volume-regulatory mechanism of the organism and entail an active salt retention. Evaluation of the prognosis is difficult. The cerebral lesions in themselves have a high mortality. Of the 46 patients, 33 died, 11 survived, and the fate of two is not known. So powerful an electrolyte shifting as often occurs is believed to play an important part in the mortality. In the surviving patients the disturbance of osmoregulation seems as a rule to have been reversible. Besides the usual treatment of the different lesions and complications most authors have given abundant salt-free fluids. Treatment with a mercury diuretic tried by Persson in two instances apparently brought improvement in one. Some cases are possibly adapted for treatment with the artificial kidney.

GYNECOLOGY & OBSTETRICS

The Stein-Leventhal Syndrome. I. F. Stein. West. J. Surg. **63:** 319-323 (June) 1955 [Portland, Ore.].

Secondary amenorrhea, a male type of hirsutism, sterility, hypoplasia of the uterus, and bilaterally enlarged, symmetrical ovaries are the signs and symptoms most consistently found in patients presenting the Stein-Leventhal syndrome (bilateral polycystic ovaries and sterility). This syndrome, which occurs in both married and single women, mostly between the ages of 17 and 30, is apparently endocrine in origin, although its exact cause is still unknown. Pregnancy may occur in the married women during the evolutionary phase of the syndrome, before the ovaries have become completely polycystic, but with this rare exception sterility is the rule. A presumptive diagnosis can often be made on the basis of the history alone in typical cases, in which normal puberty and early adolescence with either regular or irregular cycles are succeeded after a few years by periods of amenorrhea that become progressively longer; in a great many cases the amenorrhea becomes absolute. The presumptive diagnosis can be substantiated in about 50% of the cases by the routine bimanual examination (rectal examination in single girls). Gynecography (pneumoroentgenography), which usually obviates the need for exploratory laparotomy, should be used to establish the diagnosis in cases in which the results of bimanual examination are inconclusive. Bilateral ovarian wedge resection, which is extremely simple and can be done through a Pfannenstiel incision in less than 30 minutes, is the treatment of choice for patients with this condition. Ovulation usually occurs spontaneously after the operation, and there is no indication for routine postoperative endocrine or x-ray therapy. Sterility was successfully relieved by this procedure in 57 (89%) of 64 married patients complaining of infertility: they have had a total of 120 pregnancies with 97 live births (four sets of twins) and six patients undelivered.

Indications for Hysterectomy. W. P. Hutcherson and A. H. Bullard. J. Tennessee M. A. **48:**219-225 (June) 1955 [Nashville, Tenn.].

The authors review 205 hysterectomies, which they performed between 1951 and 1954. They believe that the surgeon should be equally proficient in the abdominal and vaginal approach. Total abdominal hysterectomies were performed in 104 patients, vaginal hysterectomies in 93, and subtotal abdominal hysterectomies in 8 patients. In the age group between 20 and 39 abdominal hysterectomy was most frequently performed, because it is indicated for lesions that are most frequently found in this age group such as fibromyomas, ovarian tumors, pelvic inflammatory disease, and endometriosis. Between the ages of 40 and 59 abdominal and vaginal hysterectomies were performed with about equal frequency, and from ages 60 to 69 vaginal hysterectomies were performed more frequently, because in women of these ages relaxation due to childbirth is the most frequent indication for hysterectomy. Of the 104 women who were subjected to abdominal hysterectomy, 52 had abnormal bleeding; in 25 of these, curettages were performed prior to hysterectomy, and seven malignant lesions were found. Curettement was performed in 21 others at the time of hysterectomy, but no malignant tumor was found. Of the 93 women subjected to vaginal hysterectomy 44 had abnormal bleeding. Previous curettages had been performed in 14 patients, revealing adenocarcinoma of the endometrium in one. Sixty-seven curettements were performed at the time of the vaginal hysterectomies. Hysterectomy seems to be the only treatment for patients with uncontrolled dysfunctional bleeding and incapacitating dysmenorrhea if childbearing need not be considered. Among the
gynecologic indications for abdominal hysterectomy, fibrc
oma topped the list, accounting for 48 of the 104 cases. O
indications of uterine origin were adenomyosis, dysfuncti
bleeding, adenocarcinoma of endometrium, carcinoma in
of the cervix, and invasive carcinoma of the cervix. Fort
the 93 vaginal hysterectomies were performed for repair
other disease, and 35 were performed primarily for relaxa
due to childbirth, that is, cystocele, rectocele, and prolaps
varying degrees. Thus 80.6% of the vaginal hysterectomie
cluded anterior and posterior repair, whereas only six (or 5.
of the abdominal operations were accompanied by repar
measures. No deaths resulted in the 205 hysterectomies, b
few minor complications such as cystitis, cuff infections,
temperature elevations of undetermined origin occurred.

Methylandrostenediol in Treatment of Sexual Frigidit
Women. A. Migliavacca. Riv. ostét. e ginec. prat. 37:6
(Feb.) 1955 (In Italian) [Milan, Italy].

Methylandrostenediol was used in the treatment of 27 f
women. It was employed instead of testosterone becaus
virilizing activity is almost negligible. The doses that in te
terone therapy gave good results—three 100 mg. injectio
two to three day intervals after the menstrual period—were
effective with this drug. Good results were obtained in 1
these patients when the dose was increased threefold. De
the administration of this large quantity, hirsutism,
changes, and hypertrophy of the clitoris were not observe
soft hair appeared on both forearms of one patient who
received 600 mg. of the drug, but it disappeared spontane
after three months. In all of the patients the anabolic actic
the drug was already evident 15 days after the therapy
started, and weight gains ranged from 1.7 to 4.3 kg.
menstruations remained unchanged except for three patien
whom the menses had a tendency to diminish in qua
Euphoria and a greater psychodynamic activity was experie
by the patients, and some vague neurovegetative disturba
of unknown origin were also favorably influenced. The relat
poor aphrodisiac action of methylandrostenediol with re
to that of testosterone is in part compensated by the fact
larger doses of the former can be used without the ons
virilizing side-effects. The drug is indicated in the treatme
female sexual frigidity when testosterone therapy has faile
when the eventual risk of its virilizing effects is to be avo

The Present Status of Human Male Infertility. J. MacL
Am. J. Obst. & Gynec. 69:1256-1267 (June) 1955 [St. Loui

In the past decade several studies on semen quality in ap
ently normal men and in cases of infertility have provid
more rigid definition of male infertility. The author bel
that the range of normal male fertility is much wider than
been supposed and that the sperm count per se is not the
important factor. The figure of 20 million cells per cubic c
meter is suggested as the lower level of male fertility. The p
tial of male fertility above a certain level of sperm count i
related to rising counts. There is a close relationship bet
quality of sperm motility and fertility potential. The motilit
the spermatozoa may be considered as a compensating fa
in the presence of a low sperm count. When discharged dir
into a receptacle and examined immediately, the seminal
is a coagulum in the meshes of which the spermatozoa
immobile. There is debate as to whether the nonmotile stat
the spermatozoa at this stage is physical in the sense that
are unable to move against the great viscosity of the coagul
seminal fluid or whether they lacked motility at the moment
were projected into mixture with the fluids of the seminal vesi
and prostate. The visual evidence is in favor of already m
cells being inactivated by the physical state of their new
vironment. When the coagulum is examined microscopic
during the early stages of liquefaction, two distinct phases
be seen, one in which the spermatozoa are immobilized in
coagulum but show vigorous tail movement, and the othe
fluid or liquefied phase in which, now free, they show vigor
progressive activity. Another important aspect of seminal qua
at the time of ejaculation is that most of the spermatozoa
expelled in the first third of the ejaculate. Since we are acc
tomed to thinking of the efficacy of the sperm count in ter

of count per unit and not total count, the importance of this massing of the spermatozoa in a relatively small forward portion of the ejaculate may have significance. The passage of the spermatozoa from the male to the female genital tract under physiological conditions is a rapid process and probably depends on the concentration per unit volume of spermatozoa in the first portion of the ejaculate and may be limited by the resistance of the cervical mucus.

Fractures Resulting from Eclamptic Convulsions: Review of Literature, Case Reports, and Medicolegal Implications. J. R. Reinberger and W. F. Mackey. Am. J. Obst. & Gynec. 69:1167-1173 (June) 1955 [St. Louis].

Reports on eight cases of fractures resulting from eclamptic convulsions were found in the literature. The authors describe a case of their own, in which convulsions during postpartum eclampsia resulted in a fracture of the neck of the humerus and slight compression of the body of the eighth thoracic vertebra. This patient instituted suit for neglect, charging that the eclamptic convulsions and fractures should have been prevented by proper medical supervision. Judgment was rendered against the defendant, but was reversed in a higher court. Eclampsia cannot be prevented in certain patients, and this patient had no symptoms indicating that postpartum eclampsia would occur. Questionnaires were sent to 70 medical schools in the United States inquiring about fractures due to eclamptic convulsions that had not been reported in the literature. Replies were received to 39 of these questionnaires. A total of 1,479 cases of eclampsia was observed at these 39 institutions over a period of 10 years, and two fractures due to eclamptic convulsions and two dislocated jaws were observed. The authors conclude that fractures are one of the rarest and least known complications resulting from eclampsia. They are similar to those found after convulsive therapy. These fractures are most common in patients with postpartum eclampsia and are chiefly those of the long bones and of the vertebral column. All patients who have had eclamptic convulsions should have a complete radiological examination before leaving the hospital, to be repeated in four weeks if any symptoms compatible with bone injury appear. For medicolegal reasons, this x-ray examination should be carried out before discharge from the hospital. All pregnant patients who present themselves to the obstetrician in the last four weeks of gestation should receive careful supervision on account of possible concealed toxemia, which might result in eclamptic convulsions and thereby give rise to medicolegal disputes.

Incidence of Prematurity in Relation to Maternal Nutrition. P. C. Jeans, M. B. Smith and G. Stearns. J. Am. Dietet. A. 31:576-581 (June) 1955 [Chicago].

The dietary habits of 404 pregnant women of low income, living in a predominantly rural midwestern state, were investigated. The present report concerns the incidence of prematurity in the infants born to these women, in relation to the maternal diets. Few of the women had had prenatal care or advice. They were admitted to the obstetric ward of the University Hospital about two weeks before delivery. The infants were considered prematurely born if the birth weight was less than 2,500 gm. (less than 5.5 lb.). The dietary patterns of the mothers showed a consistently high intake of white bread and potatoes. Milk intake was surprisingly low, especially so for a dairy state, and both the variety and the quantity of fruits and vegetables eaten were limited. In addition to potatoes, only carrots, apples, and tomatoes were eaten with any frequency. The meat intake tended to follow the financial status. Maternal diets were especially deficient in calcium and protein. Enrichment of bread and flour prevented severely deficient intakes of iron, thiamine, and riboflavin in many women. Potatoes were the chief source of ascorbic acid. Tomatoes and carrots provided ample carotenoids. Caloric overindulgence was far more common than inadequacy of caloric intake; the latter, when it occurred, was usually because of persistent nausea and vomiting. Obesity was common, even in the women under 30 years of age. Frequently, diets that were adequate in a majority of the 10 nutrients studied achieved that status only because the quantities of the chosen foods eaten were excessive. The mothers were divided into five groups according to their protein intakes. Group 1 received 85 gm. or more of protein daily; group 2, 70 to 85 gm.; group 3, 60 to 70 gm.; group 4, 50 to 60 gm.; and group 5, less than 50 gm. It was found that lowest birth weights, low vitality, and large numbers of deaths in the newborn infants occurred among those born to the most poorly nourished mothers. The incidence of prematurity rose sharply with the decrease in the nutritional status of the mother. Among the better-nourished women, premature delivery tended to be associated with frequency and total number of pregnancies and with multiple birth. Among the less well nourished, the incidence of prematurity showed less relationship to number or frequency of pregnancies.

Vaginal and Urinary Cytology in Threatening Abortion and in Abortion. F. Gagliardi and A. Cortella. Riv. ostet. e ginec. prat. 37:95-108 (Feb.) 1955 (In Italian) [Milan, Italy].

Vaginal and urinary sediment smears were studied in 22 cases of threatening abortion, 10 of which could not be prevented, and, before the rupture of the pregnant tube, in 2 cases of extrauterine abortion. Besides the qualitative evaluation of the cells, the acidophilic and karyopycnotic cell levels of both smears were studied and the qualitative estrogen level was deduced from them. Although there was, from the morphological standpoint, a certain parallelism between the two smears, the number of acidophil and karyopycnotic cells in the urinary smear was always lower than that in the vaginal smear. The vaginal smear technique gives a more reliable prognosis in threatening abortion than does the urinary sediment smear technique. The difference between the smears of patients in whom abortion could not and those of patients in whom abortion could be prevented was qualitative rather than quantitative. As a rule, the presence of decidual-like cells or of the postabortion-type cell with a decrease or disappearance of intermediate cells, the presence of perinuclear vacuoles accompanied by a high estrogen level indicate unfavorable prognosis, although in some cases of unavoidable abortion the findings may be almost normal. The so-called pregnancy cells are scarce and almost entirely missing from the smears of patients in whom the abortion cannot be prevented. The authors state that the vaginal smear study should be preferred to that of the urinary sediment smear. This may be useful in cases in which the vaginal smear cannot be obtained because of a great loss of blood or because other factors are present. No conclusion is drawn on the two cases of extrauterine pregnancy.

Accumulation of Radioactive Iodine by Human Fetal Thyroids. R. E. Hodges, T. C. Evans, J. T. Bradbury and W. C. Keettel. J. Clin. Endocrinol. 15:661-667 (June) 1955 [Springfield, Ill.].

The thyroid glands of fetuses from nine women in whom therapeutic abortion was induced were examined for radioactive iodine (I^{131}) content. The mothers had each been given 500 μc. of I^{131} about 24 hours prior to operation. The presumed ages of the fetuses ranged from 6½ to 15 weeks. It was found that the human fetal thyroid has the ability to accumulate demonstrable amounts of I^{131} by the 12th week of gestation. It is a matter for conjecture whether this accumulation of iodine is enough to warrant prohibition of radioactive iodine therapy of maternal thyrotoxicosis. A thyrotoxic mother was given a therapeutic dose of I^{131} at a stage of pregnancy when the fetus presumably could accumulate iodine, and she was delivered of a normal baby near term. One year later the child was normal in height and weight and was in good health. Other such cases have been reported. The lack of fetal thyroid damage may be due to the fact that the quantity of I^{131} was insufficient to be harmful. In the present series the uptake was demonstrable only by radioautograph. Furthermore, in thyrotoxicosis the maternal thyroid has a much greater affinity for iodine and hence might reduce the amount available to the fetus. In the present study the maternal uptake was 69% in the thyrotoxic patient as compared with 22 to 46% (average 30%) in the euthyroid women. It is also possible that the concentration of circulating thyroxine is elevated in thyrotoxicosis and, according to Peterson, thyroxine can readily pass the placental barrier, thus depressing fetal uptake of radioiodine. Further studies are needed to determine the amount of radioiodine accumulated at any given age by the human fetus and the sensitivity of the fetal thyroid to irradiation.

PEDIATRICS

Mucoproteins in Rheumatic Disease of Infancy. B. Fantuzzi and C. Neuhaus. Minerva pediat. **7:**478-481 (April 14) 1955 (In Italian) [Turin, Italy].

The serum mucoprotein concentration was studied in 8 healthy children, 8 children with various febrile conditions, and 13 children with rheumatic disease. In all of these except one, the mucoprotein determination, which was made the first time at the onset of the condition before commencing therapy, was repeated from two to five times at intervals of 10 to 15 days. Therapy consisted in the oral administration of aminopyrine (Pyramidon) alternating with that of salicylate, which was also given rectally. The serum mucoprotein level varied from 4.3 to 7.8 mg. per 100 cc. in the healthy children. In those with rheumatic disease, it was markedly increased, varying from 9.8 to 15.3 mg. per 100 cc. The erythrocyte sedimentation rate was increased in 10 of these children, and, generally, the higher the serum mucoprotein level, the higher the sedimentation rate; this ratio was not constant, however. The serum mucoprotein level did not differ markedly in the children with and those without cardiac involvement. As the children improved, the sedimentation rate gradually dropped to normal values. The mucoprotein level also decreased progressively, but at a much slower rate. In the eight children with nonrheumatic febrile conditions in whom the sedimentation rate was increased, the serum mucoprotein concentration, although higher than normal, did not reach the values that were found in the children with rheumatic disease. The mucoprotein level in the serum proved to be a more sensitive, and therefore a more reliable, indicator of the disease's activity than the sedimentation rate. The authors state that this laboratory test, which is easy to perform, may well become a valuable diagnostic and prognostic tool in some febrile conditions of infancy.

Cyclic Vomiting as a Form of Epilepsy in Children. J. G. Millichap, C. T. Lombroso and W. G. Lennox. Pediatrics **15:**705-714 (June) 1955 [Springfield, Ill.].

Thirty-three children in whom a diagnosis of cyclic or periodic vomiting was made did not present evidence of intrinsic disease of the abdominal or other viscera, and the cause of the symptoms had not been determined. They were then studied for evidence of a cerebral origin of the recurrent, paroxysmal autonomic symptoms. In addition to cyclic vomiting, seven of the children had a history of grand mal or psychomotor seizures, two had experienced a convulsion in early life, and five had occasional loss of consciousness either with or apart from the period of vomiting. The clinical features of patients with uncomplicated cyclic vomiting and of those with associated grand mal or psychomotor seizures were similar. The vomiting was periodic in type and of prolonged duration. It was associated with ketosis and frequently with dehydration. The average age at onset of the periodic symptoms was four years. Abdominal pain occurred in about half the patients. Abdominal epilepsy or abdominal migraine replaced the cyclic vomiting in seven patients and migraine headaches supervened in five, in all 36% of the patients. Nine children had a history of eczema, asthma, or hay fever. Behavior disorders were present in 11 children (33%), 4 of whom were mentally retarded. Other episodic symptoms, in order of frequency, were: fever, constipation, diarrhea, paresthesia, enuresis, tetany, visual disturbance, rash, and joint pain. The electroencephalograms of all patients were in some respect abnormal. Evidence of damage to the brain was definite in 14 children (42%), and suggestive in 6. Six had been born prematurely; 9, and possibly 13, had experienced head trauma or anoxia at birth; 7 had a history of postnatal trauma, associated in 3 with unconsciousness; and 5 had a history of a severe infection (measles, postvaccinal encephalitis, meningitis, or pneumonia) that preceded the onset of cyclic vomiting. Fourteen of the patients without history of convulsions or psychomotor seizures were given regular doses of the anticonvulsants Dilantin, phenobarbital, or Mysoline. Dilantin proved the most effective in the prevention of attacks, while tablets or suppositories of ergotamine tartrate with caffeine were useful in their alleviation. On the basis of all these findings, all 33 children could, in the authors' opinion, qualify for a diagnosis of autonomic epilepsy.

The Pulmonary Manifestations of Fibrocystic Disease of the Pancreas. P. A. di Sant'Agnese. Dis. Chest **27:**654-667 (June) 1955 [Chicago].

Between 1939 and 1954, cystic fibrosis of the pancreas, a generalized hereditary disease of children in which the pancreas, the lungs, the sweat glands, and frequently the liver are affected, was observed by the author in 291 children. Only 21 were hospitalized in the first five years, but 270 were admitted to hospital in the last decade of the period studied. This increased incidence is a reflection both of greater recognition of the disease and of the advent of effective antibiotics, which greatly prolong the life span. The basic nature of the disease is not known, but it is probable that all exocrine glands are affected in this condition. A variable degree of bronchial and pulmonary involvement is a virtually constant feature of the disease, usually dominates the clinical findings, and determines the fate of the patient. Cystic fibrosis of the pancreas is the commonest cause of chronic nontuberculous pulmonary disease in the pediatric age group. Cystic fibrosis of the pancreas differs from othe diseases of the lungs in that the basic phenomenon leading t respiratory involvement is a mechanical one, i. e., failure to re move bronchial mucus, which perhaps is abnormal in its physico chemical characteristics. This results in widespread and sever bronchial obstruction and predisposes the patients to secondar infection. Bronchial obstruction may thus be considered as th primary and cardinal manifestation of the pulmonary componen of fibrocystic disease of the pancreas. The causative agent usually Micrococcus (Staphylococcus) pyogenes var. aureus. the 291 children with this disease, 133 died. Of those still livin 29 were between the ages of 10 and 18 years; some of the were doing well. Early diagnosis and administration of ant biotics such as penicillin and streptomycin and of the broa spectrum antibiotics, such as oxytetracycline, chlortetracyclin and tetracycline, before the respiratory infection causes perm nent damage to the bronchi, in addition to a high-protein, low fat diet with adequate amounts of the liposoluble vitamins, adde pancreatic extracts, and liberal amounts of salt in hot weathe offer the best hope of tiding these patients over into late chil hood when the manifestations of this disorder seem to becom milder.

Isoniazid in Tuberculous Peritonitis of Childhood. H. Shuk and S. Awwaad. A. M. A. Am. J. Dis. Child. **89:**685-688 (Jun 1955 [Chicago].

Fifteen children with different types of tuberculous peritonit were collected from the outpatient department of the Children Hospital at Abbassia, Egypt, and were hospitalized for trea ment with isoniazid. The children ranged in age from 3 to years. Seven patients had the ascitic form of tuberculous pe tonitis, 7 had the fibrocaseous type, and one child had tab mesenterica (tuberculosis of the mesenteric glands). Some those with the ascitic and the fibrocaseous types also had tuberc losis of the mesenteric glands. Isoniazid was used also in thr children of one family, in whom abscesses had developed at th site of BCG vaccination with draining sinuses and region lymphadenitis. In the first 10 of the peritonitis patients isoniaz was given in daily doses of 5 mg. per kilogram of body weigh in the other 5 the dose was raised to 10 mg. per kilogram weight. Treatment with isoniazid was continued for from 6 10 weeks, and in some children *p*-aminosalicylic acid was give after the 10th week. Complete rest, good diet and tonics we employed in addition to the isoniazid therapy. Twelve of th 15 patients with tuberculous peritonitis, including all those wi tuberculous ascites and tuberculosis of the mesenteric gland were cured, and no recurrences were observed in a follow-u period of 10 to 20 months. Of the seven patients with the fibro caseous type of tuberculous peritonitis, four were cured withi six to eight weeks and the other three showed great improve ment. Fever when present subsided within one week, and th erythrocyte sedimentation rate showed a progressive declin reaching normal or very near normal levels by the end o treatment. The body weight showed an increase in 13 cases an remained stationary in the other two. Associated extra-abdomina tuberculosis was also very favorably influenced with isoniazid but in one patient cervical lymphadenitis with sinuses recurre after six months. The dramatic healing of the local complications following BCG vaccination gives a new indication for soniazid therapy. The fear of local complication need no longer deter BCG vaccination. Neither the low nor the higher doses of isoniazid caused toxic reactions; however, no significant improvement in the clinical condition was induced by the high dosage to recommend its application.

Hemodialysis of the Uremic Child. F. M. Mateer, L. Greenman and T. S. Danowski. A. M. A. Am. J. Dis. Child. **89**:645-555 (June) 1955 [Chicago].

The report is concerned with extracorporeal hemodialysis, which was used eight times in five children. In all instances an artificial kidney of a modified Alwall type was used. This machine consists of three stainless steel screens that hold a flattened 50 ft. (15.2 m.) length of 1⅛ in. (2.9 cm.) cellophane tubing in a 32 liter bath that is thermostatically controlled. Heparinized blood (3 to 5 mg. heparin per kilogram body weight intravenously) from the patient's radial artery flows through connections of nonwetting plastic tubing to a roller pump, through the cellophane tubing, again through the pump, and back to the patient's saphenous vein by way of a bubble trap and clot catcher. The dialyzing bath had the following composition: sodium 142 mEq. per liter, calcium 7 mg. per 100 ml., chloride 107 mEq. per liter, bicarbonate 37 mEq. per liter, glucose 255 mg. per 100 ml., and, when indicated, potassium 4 mEq. per liter. The patients ranged in age from 7 to 15 years. All patients were either stuporous or confused. During dialysis, which lasted from 109 to 793 minutes, the patients became more alert. Temperature, pulse rate, and blood pressure changed little in this period. Minor fluctuations in blood pressure in the third dialysis of one of the patients were readily corrected by addition of blood from the reservoir. Respiration in the three patients who were overbreathing became normal. Pulmonary edema, which existed in one patient, diminished. Urine flow, which was present only in two prior to application of the artificial kidney, continued during dialysis. Increased amounts of sedation were needed in one patient to control the convulsive seizures during dialysis. Three of the patients died. Two patients, one with acute tubular necrosis, a second with chronic glomerulonephritis, are living seven months after dialysis, the first with normal renal function. Indications for hemodialysis in uremic patients include anuria of five or more days' duration, potassium intoxication, pulmonary edema, intractable acidosis, and hyponatremia. Severe hemorrhage is the only contraindication. In view of the difficulty in assessing elements of reversibility of renal failure in chronic states, more frequent use of dialysis is indicated in these situations.

DERMATOLOGY

A New Treatment for Seborrheic Dermatitis: A Clinical Investigation. F. I. Ball. A. M. A. Arch. Dermat. **71**:696-698 (June) 1955 [Chicago].

Vancide-benzethonium solution was used to treat 98 patients with seborrheic dermatitis. Vancide 89 (N-trichloromethylmercapto-4-cyclohexane-1,2-dicarboximide) has been used in the agricultural chemical field as a fungicide, where it is known as Captan. In order to make this compound readily usable by human subjects, it was incorporated into an aqueous alcoholic lotion. This lotion referred to as Solution 105-6, contains, in addition to 0.085% of Vancide 89, 0.060% of benzethonium (Phemerol), which was added to broaden the bactericidal scope of the preparation. Of the 98 patients treated, the disease was classified as severe in 28, moderate in 52, and mild in 18. Of the 28 with severe disease, 20 were completely controlled, 6 were improved, and 2 unimproved. Of the 52 with moderate disease, 39 were completely controlled and 12 were improved; in one an allergic reaction occurred. Of the 18 with mild disease 15 completely cleared up, 2 were improved, and one failed to show any appreciable improvement. The 98 patients included 6 with atopic dermatitis and 10 with acne vulgaris, in all of whom the seborrhea of the scalp was brought under control. Four patients with the so-called "cradle-cap" type of seborrheic dermatitis were completely controlled. Eight patients with otitis externa were treated. The condition in four was completely controlled, but the others were not improved. No increased oiliness of the scalp was noted at any time following the use of this medication. It did not discolor gray or light-colored hair.

Treatment of Chronic Lupus Erythematosus with Atabrine and Chloroquine. R. B. Stoughton. Illinois M. J. **107**:299-301 (June) 1955 [Chicago].

Chloroquine was used in 25, and quinacrine (atabrine) in 18 patients with chronic lupus erythematosus. Half of the patients receiving chloroquine showed definite improvement, while the others experienced little or no improvement. Twenty-three of these 25 patients had already received treatment with other drugs, such as gold, bismuth, pantothenates, vitamin E, or carbon dioxide, without significant change in the lesions. It was most impressive when a chronic discoid patch of lupus erythematosus, after years of resistance to all treatment, suddenly underwent resolution when chloroquine or quinacrine were administered. After these drugs were discontinued, many patients relapsed to their former status, but readministration again resulted in a favorable response in most cases. Chloroquine is preferable to quinacrine, because it is less toxic, does not stain the skin yellow, and is at least as effective in therapy. Maintenance doses may have to be given to the majority of patients in order to prevent recurrences. From his own experience and from various reported studies, the author deduces that for the average adult with chronic lupus erythematosus an initial dose of 750 mg. of chloroquine can be given for 10 to 14 days and can be succeeded by 250 to 500 mg. per day for an indefinite period.

Chlorquinaldol (Sterosan) in Dermatologic Therapy. J. C. Murphy. Rocky Mountain M. J. **52**:530-532 (June) 1955 [Denver].

Chlorquinaldol (Sterosan) is a recent addition to the oxyquinoline derivatives. A series of 124 patients with a variety of pyogenic and eczematous dermatoses were treated either with 3% chlorquinaldol in an ointment base containing petrolatum and lanolin, or with 3% chlorquinaldol in a vanishing cream base. The preparation was given to patients in 1-oz. tubes or jars with directions that it be applied generously to the affected skin areas at least twice a day. A soft cotton-cloth dressing was advised in most cases. For patients with pyogenic disorders, cleansing twice daily with mild soap and water was directed. For eczematous and pruritic lesions, soap was forbidden, but gentle cleansing with a bland vegetable oil was permitted, when necessary. If additional therapy was used, a clinically comparable case was selected for treatment with chlorquinaldol alone. Treatment was discontinued after seven days in a few patients, in whom no response was elicited or who experienced irritation. When possible, "paired comparison" tests were used, a different topical medication (e. g., tar, antibiotic, or antipruritic) being used on the opposite side. Eczematous disorders existed in 89 of the 124 patients and included among others dyshidrosis, housewives' eczema, nummular eczema, and infantile eczema. A second group of 17 patients had disorders with an infectious component such as pyoderma (including impetigo), paronychia, furunculosis, balanitis, external otitis, and intertrigo. The third group comprised 18 patients with miscellaneous disorders such as lichen simplex, burns, dermatitis venenata, dermatitis or ulcer due to stasis, flexural neurodermatitis, and seborrheic dermatitis. Clearing or great improvement of the lesions was noted in 87.1% of all patients. There was improvement without cure in an additional 6.5%, and no change in 4%. Three patients with irritation were observed (2.4%), but there was no instance of sensitization.

Effect of Reserpine in Certain Dermatological Conditions. V. Panaccio. Union méd. Canada **84**:672-674 (June) 1955 (In French) [Montreal, Canada].

Reserpine (Serpasil) was administered to 28 patients with dermatological conditions in which psychic factors were prominent. Excellent results were achieved in 9 of 15 patients with psoriasis with 0.25 mg. of reserpine given three times a day, but follow-up has not been long enough to prove whether these results are permanent. The four patients with urticaria and the two with lichen planus were remarkably benefited; the action of the drug in these diseases was much more rapid than in psoriasis. In the six patients with chronic eczema, results were practically nil except in one patient, who is maintained in the asymptomatic state by 0.25 mg. of reserpine three times a day; symptoms recur immediately the drug is withheld. The one patient with prurigo also used reserpine as maintenance therapy. The commonest side-effects of reserpine administration are nasal congestion, somnolence, nightmares, and weight gain. One patient had nocturnal tremor with chattering of the teeth. These effects disappeared either with the passage of time or on the reduction of dosage from 0.5 to 0.25 mg. three times a day. The author noted two previously unreported reactions to reserpine: generalized eczematous dermatitis and asthmatiform paroxysm with facial edema and congestion. A patient who was receiving 5 mg. a day of the drug manifested a Parkinsonian syndrome (paralysis agitans) with hand tremor at rest and hypersalivation. Discontinuation of reserpine therapy caused the disorder to disappear.

UROLOGY

Clinical Application of Hemostasis with Muscular Tissue in Nephrotomy: Late Results in Twelve Cases. A. Acquati. Gior. ital. chir. **11:**425-439 (May) 1955 (In Italian) [Naples, Italy].

Acquati reports the results obtained in 12 patients in whom nephrotomy was performed and in whom, for hemostatic purposes, a strip of muscular tissue secured from the lumbar incision was placed into the operative wound and sutured. Nephrotomy was done in most of the patients to remove stones from the calices; in a few patients with so-called essential hematuria, it was merely an exploratory operation. The placing of the graft into the wound makes it possible to reduce the number of sutures and aims at obtaining good hemostasis and preventing parenchymal hemorrhages. The hemostatic effect is due partly to tamponing of the vessels and partly to the biological action of the muscular tissue. Parenchymal hemorrhages never occurred in these patients. A macroscopic hematuria was seen in some of them in the immediate postoperative days, but it was never severe, lasted six to eight days, and disappeared gradually in a few days. The presence of the muscular tissue in the wound did not interfere with the process of recovery and did not cause side-effects. Tests performed in the immediate postoperative course and again before the patients were discharged revealed prompt and complete restoration of renal function. This was still present several years later, thus indicating that the functional structure of the renal parenchyma was only slightly impaired by the connective tissue, which slowly replaced the grafted muscular tissue that underwent necrosis. Calcium formation in the parenchyma or the excretory cavities was not evident in the roentgenograms. It was possible to make histological studies of one of these kidneys that was removed two months after the nephrotomy because of pyelonephrosis. They revealed that the recovery process in the wound was good with minimal impairment of the parenchyma. No regenerative attempt on the part of the grafted muscular tissue was apparent, and calcification process was not present in the renal parenchyma.

Study of Renal Function by Means of Clearance of p-Aminohippuric Acid and Mannitol. A. Conti and C. Danese. Minerva nefrol. **2:**23-28 (Jan.-March) 1955 (In Italian) [Turin, Italy].

The method used by the authors to study the renal function by means of the clearances of *p*-aminohippuric acid and mannitol is presented. After a 12-hour period of fast and rest and one hour before commencing the test, the patient is given 500 to 700 cc. of water, and 10 cc. of blood are withdrawn for the hematocrit determination of the so-called white plasma corpuscles, namely, of those substances that interfere with the assay of mannitol because they have the same chromatic reaction. Then *p*-aminohippuric acid and mannitol are administered either in a single injection or by continuous perfusion. When the fir
mode of administration is used, 6 to 8 cc. of a 20% solutic
of *p*-aminohippuric acid and 50 cc. of a 20% solution of mar
tol are injected over a 10-minute period. Fifteen minutes aft
the injection was started, the bladder is emptied (with the p
tient standing, if possible) by introducing a catheter, which
left in situ. At the 20th minute, and then again at the 30
minute, 10 cc. of blood are withdrawn; at the 25th minute, ar
then again at the 35th minute, the bladder is emptied and washe
with 50 cc. of isotonic sodium chloride solution, and both tl
urine and the lavage solution are collected. When the substanc
are administered by the continuous perfusion method, 3 to
cc. of a 20% solution of *p*-aminohippuric acid and 50 cc. of
20% solution of mannitol are given slowly. This is follow
by the perfusion of an isotonic sodium chloride solution contai
ing *p*-aminohippuric acid in a 0.5% ratio and mannitol in
2% ratio. The blood and the urine are collected in the sar
manner as in the previous method. To estimate the tubular e
cretory capacity, the authors inject very slowly 50 to 80 cc.
a 20% solution of *p*-aminohippuric acid. At the 10th minu
and then again at the 40th minute, the bladder is empti
and washed and the urine and lavage solution are collecte
at the 25th minute, 10 cc. of blood are withdrawn. Ha
burger's technique is followed for the blood and urine ass
of mannitol and *p*-aminohippuric acid, and the photomet
determination of the two substances is made with Liet
apparatus. The authors used the above methods to study t
renal clearances of the two substances in patients in whc
there were no alterations of the cardiovascular and uropoie
systems. They found that (1) with the continuous perfusi
method of administration the glomerular filtrate fluctuated t
tween 110 and 135 cc. per minute and the renal plasma flc
between 560 and 820 cc. per minute; (2) with the single inj
tion method the glomerular filtrate ranged from 105 to 140 c
per minute and the renal plasma flow from 570 to 750 cc. p
minute; and (3) the *p*-aminohippuric acid tubular excretc
capacity was of 81 to 88 mg. per minute.

The Present Status of Renal Angiography. E. W. Riches. B
J. Surg. **42:**462-470 (March) 1955 [Bristol, England].

Riches says that the use of organic iodine preparations inste
of sodium iodide has abolished nearly all the dangers of re
angiography. Diodone, 70%, has been used in more than 2
patients at Middlesex Hospital. There are two routes of approa
to the abdominal aorta for angiography, the lumbar and t
femoral. After a trial of both methods the author favors t
lumbar route as being easier, quicker, and less prone to failu
or complications. The femoral route is indicated if an aor
aneurysm is suspected. The general effects of injecting 30 r
or even 60 ml. of diodone 70% rapidly into the circulati
must be foreseen. Some patients are sensitive to iodine, a
before doing an excretion pyelogram a sensitivity test shou
be done with a small amount of diodone. When this work w
started, the author considered that the main indication for a
aortogram was when one kidney failed to function on excreti
urography and its ureter could not be catheterized for the pu
pose of a retrograde pyelogram. That is still an important gener
indication, but the scope of the investigation has been widene
The first 100 patients in whom the author employed renal angio
raphy included 21 with renal new growths, 18 with hydr
nephrosis and hydrocalicosis (localized dilatation of a calix), 1
with renal cysts, 14 with congenital anomalies, 12 with hem
turia or pain, 9 with tuberculosis, 7 with nontuberculous i
flammation, and 4 with calculous disease. Renal angiography
a safe procedure, and the technique can be mastered fairl
easily. It can be done in any general hospital that has a goo
diagnostic x-ray department. It is an essential part of the in
vestigation of a space-occupying lesion in the kidney, of hydro
nephrosis, of congenital anomalies, and of any condition fo
which partial nephrectomy is contemplated. It is often desirabl
in suspected renal hypertension. The contraindications to its us
are iodine sensitivity and uremia. Its scope will be increased by
improvements in film-changing mechanisms and in x-ray tech
nique generally. It does not replace the standard well-tried
urological investigations, but is complementary to them.

BOOK REVIEWS

Diseases of the Thyroid Gland. By Samuel L. Gargill, M.D., Assistant Clinical Professor of Medicine, Harvard Medical School, Boston, and Mark Falcon Lesses, M.D., Instructor in Medicine, Harvard Medical School. (Reprinted from 'Oxford' Loose-Leaf Medicine with same page numbers as in that work) Cloth. $12. Pp. 839-964 (375). Oxford University Press, 114 Fifth Ave., New York 11, 1955.

The authors have given a comprehensive and well-written résumé of the present status of thyroid disorders. All aspects of the subject are covered comprehensively with an adequate presentation of the underlying physiological facts essential for an understanding of the modern management of these diseases. The authors present their material clearly and succinctly with well-selected illustrations and bibliographic references. The typography is excellent, but the binding is not commensurate with the general high quality of the book. This book may be recommended to the reader desiring an up-to-date coverage of the modern concepts of the pathogenesis, diagnosis, and treatment of disorders of the thyroid.

Fluoroscopy in Diagnostic Roentgenology. By Otto Deutschberger, M.D., Assistant Clinical Professor of Radiology, New York Medical College, New York. With introduction by Frank J. Borrelli, M.D., F.A.C.R., Professor of Radiology, New York Medical College. Cloth. $22. Pp. 771, with 888 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, England, 1955.

This book is divided into two parts. Part 1 starts with the history and development of fluoroscopy. For the benefit of the beginner, the author describes fluoroscopes in detail, covering their operation, the shifting of the tube and screen, and various methods of control of the field of vision. Safety regulations are described. The various types of fluoroscopic image are discussed, also methods, procedures, and the results obtained. The newer electronically amplified fluoroscopic images are included, with description of the physical processes involved and the construction of these units; this chapter covers the entire subject of electronically operated equipment, giving a complete list of references. A clinical evaluation of fluoroscopy compares it with radiography, giving the advantages and disadvantages of both. Various types of lesion that are found are discussed. Foreign body localizations are explained in detail; there is a valuable chapter describing foreign bodies and how they may be localized and discussing various methods of marking to make for ease of surgical removal. Part 2 is devoted to clinical considerations, including lesions found in various parts of the body and the technique of using contrast mediums to visualize various organs under fluoroscopic study. Various parts of the anatomy are taken up in detail with discussion of the technique used in their visualization and of the lesions found in this type of study. The fluoroscope probably is most widely used in the study of the chest. The chapter on thoracic fluoroscopy goes into detail in describing the methods used to study the heart, lungs, and thoracic cage, the various shadows seen, and the differentiation of normal and abnormal conditions. Many physicians are probably unfamiliar with the many ways in which the fluoroscope may be used in the study and differential diagnosis of various types of abdominal diseases. The chapter covering this aspect of the subject should be of particular interest to the beginner and the medical student. The final chapter on the use of the fluoroscope in studying the extremities describes the types of lesion found and the definite aid of the fluoroscope in fractures. The appendix is a compilation of fluoroscopic findings, methods of reporting, and the various forms that might be used in reporting fluoroscopic studies. The The index of authors is most complete, and there is also a subject index. This book should be required reading for any group doing fluoroscopy and especially for beginners. The chief objection to the book is that all the figures are negative instead of positive prints.

A Primer of Electrocardiography. By George E. Burch, M.D., F.A.C.P., Henderson Professor of Medicine, Tulane University School of Medicine, New Orleans, and Travis Winsor, M.D., F.A.C.P., Assistant Clinical Professor of Medicine, University of Southern California Medical School, Los Angeles. Third edition. Cloth. $5. Pp. 286, with 281 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadephia 6, 1955

This third revision continues the high standards of its predecessors and includes the current accepted knowledge of the complex problems of electrocardiography. Its title is a little misleading due to the use of the word "primer," since the subject is dealt with in a comprehensive way. The word "primer," however, seems to have been used to emphasize the aim of the authors to supply the user with fundamental knowledge and understanding of the scope and limitations of clinical electrocardiography. This goal has been accomplished satisfactorily. The text is profusely illustrated with well-selected figures that aid the user in its understanding. Controversial matters have been omitted, apparently in the belief that they would be unsuitable for an introductory guide. In addition to the initial chapter on the principles of electrocardiography, the material is presented in sections dealing with analysis of the various components of the electrocardiogram and their clinical significance, the precordial leads, the disorders of the heartbeat, and the clinical applications of electrocardiography. An appendix comments on the triaxial reference system, the electrical axis, average norms of the several intervals and waves of the tracings, the P-R interval, duration of QRS, S-T segments, Q-T interval, relation of cycle length to heart rate, and criteria of the truly diagnostic features of the tracing such as the definite evidences of myocardial disease, strongly suggestive evidences of the latter, and certain findings not in themselves abnormal. A key for recording the electrocardiogram ends the text. The volume is well suited to its purpose, well printed and bound, and should be of real help to the experienced cardiologist as well as the beginner in electrocardiography. It can be recommended without reservation.

The Behavior of Pulmonary Tuberculous Lesions: A Pathological Study. By E. M. Medlar, Chief Pathologist, Division of Tuberculosis, New York State Department of Health, Hermann N. Biggs Memorial Hospital, Ithaca, New York. Cloth. Pp. 244, with 136 illustrations. [Hermann M. Biggs Memorial Hospital, Ithaca, N. Y., n.d.]

This work is a summary of Dr. Medlar's experience in the study of the pathology of tuberculosis. Tuberculosis is still with us, although the pattern of its appearance, morbidity, and mortality has changed since 1922 when the Hegeman Memorial Laboratory was opened at Mount McGregor, N. Y. Despite the splendid record of achievement in reducing the death toll from tuberculosis, the disease still ranks among the important public health problems in this country. The skill, precision, and soundness of this work are reflected in the carefulness of the descriptions and beauty of the illustrations. A familiarity with this work should increase the clinician's confidence in the accuracy of inferences he may draw from clinical data and objective findings. Medlar sought to understand the dynamics of tuberculosis, and, if the contents of this book are sufficiently controversial to stimulate further effort to solve the problem, its purpose will have been accomplished. Discussion of views of other writers is purposely avoided, since this is not intended to be a textbook.

The chapters cover a statement of the problem, the experimental approach, autopsy studies of human pulmonary tuberculosis, preliminary discussion of resected specimens, behavior of the parenchymal tuberculous lesion, a study of resected minimal tuberculosis, bronchial lesions in tuberculosis, tuberculosis and bronchiectasis, bacteriological observations, and a reexamination of the problem. The volume is a reprint of original copy appearing in the March, 1955, issue of the *American Review of Tuberculosis* (vol. 71 [part 2] no. 3). This outstanding contribution is the result of patient endeavor.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

Lehrbuch der praktischen Orthopädie. Von Dozent Dr. Walther Aberle, et al. Herausgegeben von Ph. Erlacher. Cloth. $24.50. Pp. 549, with 764 illustrations. Verlag Wilhelm Maudrich, Spitalgasse 1b, Vienna IX; Bonn, 1955.

This textbook of practical orthopedics presents the fundamental ideas taught by Dr. Spitzy. The authors are recognized authorities in the field of orthopedics and are former students of Dr. Spitzy. There are sections on special orthopedic techniques, orthopedics in children, adolescent orthopedics, adult orthopedics, and amputations. The book is concerned with investigation and recognition, prevention, and treatment of all deformities and disturbances in body mechanics. It is primarily the result of observations made during the last 50 years. Congenital deformities, rickets, tuberculosis, and paralysis were the chief concern of orthopedics in the early part of the century. World War I produced an extraordinary number of wounds and amputations. There has also been a tremendous increase in automobile and industrial accidents in the last 50 years. As a result, techniques for care of amputations have been rapidly developed. The results of World War II were similar to those of World War I, but there was a far greater number of casualties. During the recent decades, disorders due to mechanical strain and tension have greatly increased. Arthroses and hypertrophic arthritis have become a more important orthopedic problem due to the longer life span. Tremendous advances have been made in surgery for orthopedic conditions in England, America, Germany, and Austria. Advances in all other branches of medicine have also influenced modern orthopedics. There is a discussion under children's orthopedics of club feet, torticollis, and scoliosis. The importance of the intervertebral disk as an etiological factor in scoliosis is discussed. An excellent chapter is devoted to dysplasias of the hip with conservative and surgical treatment. There is a complete description of poliomyelitis, spastic paralysis, and tuberculosis. Epiphysial disturbances and osteomyelitis are considered under adolescent orthopedics. The arrangement of the material is practical and concise. The book is amply illustrated with clear and interesting plates. This is a textbook that gives a view of modern German orthopedics. It is a credit to the authors as well as to their former professor, Dr. Spitzy.

Housing the Aging. Edited by Wilma Donahue. With foreword by Everett J. Soop. Cloth. $3.75. Pp. 280. University of Michigan Press, Ann Arbor, 1954.

This book is a comprehensive and well-documented study and report on housing of the aged (everybody is aging). It is a cooperative effort of the university, the Michigan State Medical Society, the Housing and Home Finance Agency, and the Committee on Aging and Geriatrics of the Federal Security Agency. It recognizes and brings into focus the importance of the care of the aged in health and during illness. Prolonged illness in the aged is truly a catastrophic condition. The report is somewhat critical, and justly so, of the unwillingness of the general hospital to do its share in caring for this group. It brings out the fact that most of the aged are cared for in the home and reports on the limited number of groups devoted to the home care of these people. It also points up the dangers of accident to these people, not only in the home but also in hospitals and nursing homes. It recommends changes and corrections, such as housing them on one floor and with non-skid flooring and safeguards in bathrooms. The necessity for these changes is recognized by all who are familiar with this problem. A thorough outline of the economic problems is presented, as well as suggested methods for improvement. All in all it is an excellent review and deserves a prominent place as a reference book.

Airborne Contagion and Air Hygiene: An Ecological Study of Droplet Infections. By William Firth Wells. Cloth. $6. Pp. 423, with 85 illustrations. Published for Commonwealth Fund by Harvard University Press, Cambridge 38, Mass.; Oxford University Press, Amen House, Warwick Sq., London E.C.4, England, 1955.

This volume represents, in large part, the results of studies on droplet nuclei and their relationship to the spread of disease. The author has been engaged in these investigations for almost 20 years and presents a clear and informative picture of the dynamics of the spread of air-borne infection. Part 1 describes the physics and chemistry of droplets and droplet nuclei and the biology and related physics and chemistry of infection and disinfection. The physiology and parasitology of droplet nuclei contagion are presented. The experimental work that led to the final conclusions is explained and described with clarity. Part 2 is concerned with principles and methods of prevention of infection primarily through an understanding of the forces that are responsible for the spread of air-borne disease. The principles of sanitary ventilation are defined and presented in an understandable manner. The entire book is well written and all terms that may be at all unfamiliar are defined in advance. Good use is made of photographs, tables, and drawings. This book should be of interest not only to the epidemiologist but also to all persons who are concerned, in any way, with preventive medicine.

The Spine: A Radiological Text and Atlas. By Bernard S. Epstein, M.D., Chief, Department of Radiology, Long Island Jewish Hospital, New Hyde Park, N. Y. Cloth. $16.50. Pp. 539, with 721 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1955.

This rather complete roentgenologic textbook treats the vertebral column as a separate entity. It is one of the more important contributions dealing with the spine since the publication of "The Vertebrae" by George and Leonard in 1929. The first chapter describes the normal development and anatomic variations of the vertebral column that serves as a guide to the understanding of the abnormal spine. The following chapters contain an excellent correlation of radiological and clinical findings of all the diseases that affect the spine, primarily or secondarily. The smooth continuous writing affords easy reading, while the numerous illustrations add much to the descriptions. The author's wide experience, plus a most complete and recent list of references, makes this book a valuable radiological treatise.

Practitioners' Conferences Held at the New York Hospital-Cornell Medical Center. Volume I. Edited by Claude E. Forkner, M.D., F.A.C.P., Professor of Clinical Medicine, Cornell University Medical College, New York. Cloth. $6.75. Pp. 411. Appleton-Century-Crofts, Inc., 35 W. 32nd St., New York 1, 1955.

This volume presents, for the first time in book form, a collection of the panel discussions conducted at Cornell as a series of informal clinical conferences open to all physicians of the greater New York area. Some of the discussions have been published in *New York Medicine*, and those included in the book have been further revised and edited to bring them up to date. The topics include such subjects as influenza and primary atypical pneumonia, present status of corticotropin and cortisone, disorders of feet, and home care of patients with acute poliomyelitis. Discussions encompass pathogenesis, diagnosis, prevention, and treatment of certain important diseases. The comments of the panel participants are reproduced in their original dialogue form, supplemented by a summary and list of pertinent references at the end of each discussion. No index is provided, but the topics are readily accessible from the table of contents. General practitioners, specialists, senior medical students, interns, and residents should find this book helpful in gaining additional knowledge of some of the important problems that confront the physician.

Modern Trends in Ophthalmology: Third Series. Edited by Arnold Sorsby. Cloth. $12.50. Pp. 346, with 111 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1955.

This book is divided into six sections. In the first newer developments in anatomy, physiology, and optics are dealt with by outstanding experts in the use of the electron microscope, in current biochemical problems, and in newer aspects of physiological optics. The second section covers diagnostic procedures most important of which are ophthalmoscopy of the extreme fundus periphery and slit lamp microscopy of the posterior segment of the eye. The third section discusses clinical and experimental pathology. About half of the book is devoted to the fourth and fifth sections covering clinical aspects and treatment. The chapter on ocular aspects of diffuse collagen diseases is particularly well written and clearly explained. There are 53 contributors, some of the outstanding ophthalmologists in the world, who write authoritatively on their particular development or interest in a special phase in ophthalmology.

A Textbook of Medicine. Edited by Russell L. Cecil, M.D., Sc.D., and Robert F. Loeb, M.D., Sc.D., LL.D., Bard Professor of Medicine, Columbia University, New York. Associate editors: Alexander B. Gutman, M.D., Ph.D., Professor of Medicine, Columbia University, Walsh McDermott, M.D., Livingston Farrand Professor of Public Health and Preventive Medicine, Cornell University, and Harold G. Wolff, M.D., Professor of Medicine (Neurology), Cornell University, New York. Ninth edition. Cloth. $15. Pp. 1786, with 201 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, England, 1955.

The popularity of this classic textbook is attested by the fact that, since its first appearance in 1927, it has undergone eight revisions. As in the past, the authors have combined the physiological and biochemical aspects of disease with the actual description of the disease. Thirty-nine subjects not covered in previous editions have been added; many of the old sections have been rewritten by new contributors; and some sections have been transferred to a more appropriate grouping. The imposing list of 172 contributors includes the outstanding authorities in the various fields covered. The book is well illustrated, with some of the plates reproduced in color. The two-column page makes for greater ease in reading. References are included at the end of each subject. The indexing is exceptionally complete. This edition should easily gain the enthusiastic reception accorded to its predecessors.

History of the Second World War: United Kingdom Medical Series. Editor-in-Chief: Sir Arthur S. MacNalty, K.C.B., M.A., M.D. The Army Medical Services. Administration: Volume II. Edited by F. A. E. Crew, F.R.S. Cloth. 65s. Pp. 564, with 39 plates. Her Majesty's Stationery Office, P. O. Box 569, London, S.E. 1, England, 1955.

This book is the second and last volume of the British official medical history of World War II. It is concerned chiefly with the organization and medical administration of various special services, some of which were new departures while others were already in being when war started. The volume was edited by Prof. F. A. E. Crew under the supervision of an editorial board appointed by the British government. The first chapter deals with the Army Nursing Service; then comes the chronicle of the Army Hygiene Service, which did much to prevent epidemics of infectious disease in the British Army. Chapter 5 deals with the creation and evolution during the war of the Army Dental Service. The remaining chapters tell of the Army Blood Transfusion Service, the Army Psychiatric Service, the Army Pathology Service, the Army Radiological Service, the Army Ophthalmic Service, and medical provision for the Auxiliary Territorial Service. These historical accounts, no doubt, provide lessons from the past, some of which should be of value in the future.

Hematology. By Cyrus C. Sturgis, M.D., Professor of Internal Medicine, University of Michigan Medical School, Ann Arbor. Second edition. Cloth. $19.50. Pp. 1222, with 78 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, Canada, 1955.

This heavy, bulky, expensive book contains a great deal of information. The historical introductions to most of the chapters are excellent. The modern medical student seems to be in a sort of present-day vacuum from which his teachers often make no effort to extricate him. He knows what the situation is now, but what went before and how difficult it was to reach the present situation are rarely taught. In this isolated environment, dominated as it is by the necessity of accumulating as much information (with as little culture) as possible, modern-day miracles, whether they be vitamin B_{12}, penicillin, or cortisone, are taken for granted. Except for the historical data, Sturgis' textbook is orthodox and singularly lacking in imagination and in the development of concepts but nevertheless straightforward and descriptive. It gives information without stimulation. There is too much reliance on the "literature," often quoted at great length and often uncritically. Although this new edition purports to be up-to-the-minute, some of the older quotations from the literature are retained, despite newer information that may have made them obsolete. Far more information about many of the subjects discussed can be obtained through consulting a number of monographs containing more critically evaluated and authoritative data.

Bedside Diagnosis. By Charles Seward, M.D., F.R.C.P., Physician, Royal Devon and Exeter Hospital, Exeter, England. With foreword by Sir Henry Cohen, M.D., D.Sc., LL.D., Professor of Medicine, University of Liverpool. Third edition, Cloth. $4. Pp. 408, with illustrations. Williams & Wilkins Company; Mount Royal and Guilford Aves., Baltimore 2; E. & S. Livingstone, Ltd., 16 and 17 Teviot Pl., Edinburgh 1, Scotland, 1955.

The author has attempted to treat the problem of diagnosis in internal medicine from a standpoint of interpreting the significant symptoms. This is a refreshing approach and one that should receive more emphasis in our medical schools. Rather than listing the more important diseases and then enumerating the prominent symptoms, the author bases his book around 20 of the most common and significant complaints of the patients. He devotes a chapter to each symptom and discusses, in turn, the pathological physiology, a suggested diagnostic approach, and then the various diseases or disturbances of function that will produce the symptom. He does not neglect the fact that many of these symptoms may at times be of a psychosomatic nature and devotes an additional chapter to this aspect. The discussions are brief and to the point, and the edition is printed in a convenient pocket size. It should be of use not only to the student but also to the practicing physician, who is constantly faced with the problem of selecting the significant symptom and then making the correct interpretation.

Les maladies de l'anus et du canal anal. Par Pierre Hillemand, médecin de l'Hôpital Tenon, Alfred Bensaude, et Jean Loygue, chirurgien des hôpitaux de Paris. Avec la collaboration de Jean André et Edwin Sidi, médecin-chef du Service de dermato-allergie de la Fondation Rotschild. Cloth. 3400 francs. Pp. 283, with 57 illustrations. Masson & Cie, 120 boulevard Saint-Germain, Paris, 6e, France, 1955.

The authors of this splendidly written and well-illustrated manual believe that, although rectal disease is well documented, information pertaining to diseases of the anus and of the anal canal is sparse, at least in France. The purpose of the book, therefore, is to fill this gap. Gastroenterologist, surgeon, and dermatologist have collaborated in the production of this volume. Part 1 includes anatomy, physiology, and symptomatology; part 2 pertains to anal spasm and anal atony; and part 3 deals with anal diseases. The illustrations, some in color, are excellent. To avoid possible confusion, the reader must realize that the authors include the perineal portion of the rectum in the term "anal canal." This work, therefore, necessarily involves some rectal problems, a circumstance that does not, however, detract in the least from the stated objective of the book. Every physician who is interested in the better management of anorectal disease should find this manual a valuable addition to his library.

Principles of Animal Virology. By F. M. Burnet, Director, Walter and Eliza Hall Institute of Medical Research, Melbourne, Australia. Cloth. $10. Pp. 486, with 35 illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1955.

The widespread interest in poliomyelitis vaccine has made the appearance of this book most timely. The author states, "One can agree wholeheartedly with the current decision of American authorities to use formalin-killed virus as the vaccine for the first large scale test, but still retain the opinion that, in the long run, the more natural method will prove the most effective and will eventually be adopted as the definitive method for the prevention of poliomyelitis." Much space is given to such subjects as morphology, cellular structure, and variation of viruses, but the practical application of knowledge available is not neglected. In the final chapter on classification and nomenclature, the viruses causing disease in animals and man are divided into five groups—Rickettsiales, Poxvirus, Herpesvirus, Poliovirus, and Myxovirus. The author has had a long experience with virus investigations and has cited numerous references to the work of nearly a thousand other workers from many countries. The bibliography is excellent.

QUERIES AND MINOR NOTES

BLOOD PRESSURE READINGS

To the Editor:—*Present-day thinking on what constitutes arterial hypertension and when it becomes necessary to institute medical treatment seems in a rather confused state. How long is it necessary to record pressure readings under varying conditions before one may conclude what the basic pressure is? At what level, particularly diastolic, should the patient be advised that he has high blood pressure and treatment instituted?*

M.D., Arizona.

Answer.—There are so many variables involved in these two questions that a dogmatic answer would be misleading. In the first place, from the viewpoint of therapy, the habitual blood pressure during a typical, routine day is more significant than the basal level at rest or under sedation. The patient rarely spends more than a third of his time at rest. Secondly, the degree of variation on different occasions will differ greatly in different patients; in some four or five readings, observed in the morning, after lunch, in the evening, after a "tough time" on the job, or a row at home, the tension will fluctuate only slightly. In others the spread of variation may be great. Wide fluctuations are indicative of arteriolar spasticity and contraindicative of extensive arteriolar sclerosis and are therefore of considerable prognostic import. However, the extent of arteriolar spasticity versus arteriolar sclerosis may be determined in a very few minutes on the first examination and discovery of arterial hypertension by the application of the amyl nitrite test (*Arch. Int. Med.* 46:227 [Aug.] 1930; Geriatric Medicine, ed. 3, Philadelphia, J. B. Lippincott Company, 1954). This measures the fall in diastolic tension on the inhalation of amyl nitrite and is so prognostically significant that it should be included in the initial evaluation of all instances of hypertension. Other variables are the age of the patient (as a rule, the later in life the date of onset, the slower the progression of hypertensive disease); the known duration of the disorder (if the patient reports that a blood pressure of 180/110 mm. Hg was found 15 years previously and the level is nearly the same now, it is clear that the disorder is not progressing rapidly and there is no cause for alarm); and, last but not least, the probable etiological background (including prior nephritis, protracted anxiety, and plumbism).

If three or four readings made under variable circumstances vary no more than 20 mm. Hg systolic and 10 mm. Hg diastolic, the mean of the observations may be considered the habitual blood pressure of the patient. If the variations are extreme, as for example from 210/130 to 140/90 mm. Hg, it is clear that the situation is one of arteriolar spasticity, early in the course of the disease, and that the basal or habitual level is not significant. What is important is that this is evidence of vulnerability on the part of the arterioles to respond with excessive constriction upon stimulation; identification of the sources of the vasopressive stimuli (such as certain emotional situations or pheochromocytoma) and their correction becomes the primary therapeutic objective. The range of what is considered "normal" or "habitual" levels of arterial tension has been widened in recent years. An extensive study (Master, A. M.; Garfield, C. I., and Walters, M. B.: Normal Blood Pressure and Hypertension: New Definitions, Philadelphia, Lea & Febiger, 1952) leads to the conclusion that permissible normal systolic tensions cover a spreading, wider range as age advances. They state that at age 20 to 24 years the systolic range is from 100 to 130 mm. Hg, the diastolic from 60 to 85 mm. Hg, at age 40 these are systolic 105 to 150 mm. Hg, diastolic 65 to 94 mm. Hg; at age 50, systolic 110 to 160 mm. Hg, diastolic 70 to 100 mm. Hg; and at age 60, systolic 115 to 175 mm. Hg, diastolic 70 to 100 mm. Hg. These are statistically valid "normal" variations, but not necessarily levels of optimum health and/o longevity.

The second question, about when the patient should be informed that he has high blood pressure and treatment recommended, is also not amenable to dogmatic answer. This mus be individually decided, taking into consideration the personalit of the patient, the variability of the arterial tension, and th probable etiological picture. Persistent diastolic pressures ove 110 mm. Hg warrant attention; borderline situations are ofte best handled by an explanation that they are borderline, probably only potentially significant, with no implication of immed ate jeopardy, but that the time to arrest progression and eliminat so far as possible contributing causative factors is now rathe than 10 years from now when the disease may be fully established. The fuller, franker, clearer, and more comprehensiv the instruction of the patient into the nature, significance, an progressiveness of hypertension, the less likely is undesirab apprehension. Here as much as anywhere in medical practic the physician must be the teacher, the explainer, and the r assurer. Conservative therapy with continuing but not overdoi reassurance and study and correction of factors contributi to the hypertension are often sufficient to obtain excellent a lasting results. It is frequently expedient to emphasize that t findings merely reveal that the patient is vulnerable, reacti by a rise in blood pressure, to certain situations (such as e cessive fatigue, heavy responsibility, the pressure of deadlin and anger) just as a blond person is vulnerable to sunbu and that protection against sunburn when exposure is unavoi able is preferable to treatment after the injury is sustaine Lastly, it is important to keep in mind that the initial readi of the arterial tension, observed at the first visit of a new p tient, is almost invariably higher than subsequent observatio The patient is frightened, anxious as to what he or she w undergo, what will be found, and as yet not fully certain the physician. These initial readings, unless excessively hi must be discounted and no mention made of the hypertensi until its persistence is confirmed by subsequent observations.

STARVATION TREATMENT FOR DIABETES

To the Editor:—*Please tell me if the old Frederick Sterns a Allen starvation treatment for diabetes mellitus has merit a if so outline the treatment.*

K. E. Kerby, M.D., Nyssa, Ore.

Answer.—The question probably ıefers to the treatment i undernutrition as advocated by Frederick M. Allen in T Journal (**63**:939 [Sept. 12] 1914; and **66**:1525 [May 13] 191 in the *Boston Medical and Surgical Journal* (**172**:743, 191 and in the *American Journal of Medical Sciences* (**150**:480, 191 Undernutrition is acknowledged universally to have merit in t treatment of the obese diabetic patient and in most diabeti will often result in the urine becoming sugar free and may ma unnecessary the use of insulin. In the preinsulin days, it was great value, because it reduced the liability to acidosis a diabetic coma and encouraged the doctor to treat his patien intensively and to learn how much of the diet was utilize Undernutrition explained why certain bizarre diets or diets wi high fat and low carbohydrate and protein were of valu Actually they were undernutrition diets. Even today, utilizatio of the principle of undernutrition, combined with insulin, giv the speediest and best results in the inauguration of treatmen However, because of insulin, absolute fasting is practically neve necessary; indeed, even though an individual does omit food h does not actually fast but subsists on the carbohydrate, protei and fat stored in his own body. The original articles by Alle well deserve rereading by anyone deeply concerned in the treatment of diabetes. The following paragraph outlines his method of treatment.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

"If the patient is moderately emaciated, with a negative carbohydrate balance and acidosis, he is put to bed and receives no food whatever. Present experience indicates that even in severe cases ketonuria may by this method be made to disappear entirely. Several repetitions of the foregoing routine may be necessary for this purpose. All food contains danger, tending toward either glycosuria or ketonuria. The carbohydrate of the diet is seldom reduced below 50 gm. and is preferably kept higher. If carbohydrate must be kept low, the total diet is kept low. The diet is so chosen that glycosuria not ketonuria, is the signal of overstrain. If there has been no glycosuria, a slight addition to the diet is made after each fast-day. Each day's diet is calculated exactly, and the nitrogen-balance is watched. The attempt to increase weight should be the last rather than the first step in treatment. It is attempted to keep the metabolism at the lowest safe level until the patient is taking from 100 to 150 gm. of carbohydrate (mostly as green vegetables) daily, with fast-days interposed often enough to prevent any trace of glycosuria from appearing. Then protein is cautiously added, always being kept rather low; and in favorable cases the weight and well-being may finally improve under gradual additions of fat. The radical procedure here described is that used for the most severe cases. In milder cases the treatment may be correspondingly milder. Primary loss of weight is intentional."

Joslin's statistics show the average duration of life of diabetics who died between 1897 and May 31, 1914, was 4.9 years but in the subsequent eight-year period, when the treatment was influenced by Allen's undernutrition ideas ending with the discovery of insulin, it rose to 6.1 years, and the mortality from diabetic coma dropped from 63.8% to 41.5%. Joslin's method (Treatment of Diabetes Mellitus, Philadelphia, Lea & Febiger, p. 243, 1916) for the utilization of undernutrition was as follows:

"*Preparation for Fasting:* In very severe, long-standing, complicated, obese and elderly cases, as well as in all cases with acidosis without otherwise changing habits or diet, omit fat, after two days omit the protein, and then halve the carbohydrates daily until the patient is taking only 10 grams; then fast. In other cases begin fasting at once.

"*Fasting:* Fast four days, unless sugar-free earlier. Allow water freely; tea, coffee and clear meat broths as desired."

By the above plan few cases needed to fast. As soon as the urine was sugar free the diet was gradually increased. In those bygone days without insulin, undernutrition really revolutionized treatment in diabetes and much further progress undoubtedly would have been made in the next decade had insulin not been discovered. Of course, insulin was so efficient that it almost outmoded all the good ideas in the diets painstakingly learned during the preceding century.

SACCHARIN AND THROMBOCYTOPENIC PURPURA

To the Editor:—*A 73-year-old practicing physician was found one year ago to have a thrombocytopenic purpura, with a platelet count that varies from 18,000 to 45,000 per cubic millimeter. He has a normal red blood cell count, normal hemoglobin level, and a normal total white blood cell count but with a moderate relative leukopenia. The spleen is not enlarged, and sternal puncture gave equivocal findings. He shows moderate ecchymosis following slight trauma but has not had mucous membrane hemorrhages. After gastrectomy for duodenal ulcer five and a half years ago, he was given large doses of penicillin without untoward reaction. For three years before discovery of the condition, he used saccharin freely in coffee and cereals in amounts of 1 to 4 grains (0.065 to 0.25 gm.) daily. Is there any evidence to support the suspicion of the saccharin as a causative factor in this condition?*

M.D., California.

Answer.—This question was reviewed both by a consultant with extensive experience in examining patients who use saccharin daily and by another consultant who is interested in hematology and has seen a large number of patients with thrombocytopenic purpura. Neither consultant thinks that the saccharin has had anything to do with this condition.

DIABETES INSIPIDUS

To the Editor:—*A 4½-year-old child has diabetes insipidus, bone destruction on both sides of the mandible, a bony defect in the right mastoid, and a small, slightly osteoporotic area in the right frontal bone. She has anemia (hemoglobin level 8.7 gm. per 100 cc., and red blood cell count 3,240,000 per cubic millimeter). The clinical diagnosis of histiocytosis, Hand-Schüller-Christian type, was confirmed by biopsy. The diabetes insipidus is under control with powdered posterior pituitary extract. Contemplated roentgen therapy is to be given by a qualified radiologist. What is the potential danger of radiation damage to the brain? What other therapeutic measures are available for histiocytosis? Because of the granulomatous nature of lesions of this type, antibiotic treatment has been suggested besides x-radiation. What antibiotic should be used? Heinz C. Meyer, M.D., Konnarock, Va.*

Answer.—The best method of handling this patient would be with radiation therapy. Each area of known involvement should be treated at the outset. The dosage necessary to produce regression of the lesions is low, in the neighborhood of 300 r. After the first course of treatment, the patient should be rechecked at frequent intervals (about three months) and further treatment given to any new areas that may appear or to areas that are not improving. With low total dosage of x-rays, there should be little chance of brain damage from x-rays if they are administered by an experienced radiologist. Antibiotic therapy cannot be expected to affect this disease. The articles listed below outline methods of therapy and results that may be achieved.

References

Wallace, W. S.: Reticulo-Endotheliosis: Hand-Schüller-Christian Disease and the Rarer Manifestations, Am. J. Roentgenol. **62**: 189-207 (Aug.) 1949.

Childs, D. S., Jr., and Kennedy, R. L. J.: Reticulo-Endotheliosis of Children: Treatment with Roentgen Rays, Radiology **57**: 653-658 (Nov.) 1951.

HOSTILE CERVICAL MUCUS

To the Editor:—*I have encountered a second infertile couple who demonstrated an abnormality that I have not seen discussed. The postcoital examination shows normal cervical mucus with no spermatozoa while the semen in the vagina shows large numbers of apparently normal and active spermatozoa. Although the spermatozoa lash heads and tails about vigorously, not one was seen to progress any distance at all on the slide. Both women have been demonstrated to be normal by all available tests. The first husband was referred to a urologist who gave a normal report and mentioned an excellent semen analysis with 95% motility initially and 50% after 24 hours. I have tried washing the spermatozoa obtained from the vagina and titrating with alkali and acid without causing any progress to be made, even though the spermatozoa continued trying through a wide pH range. Intrauterine instillation of the husband's spermatozoa has been tried several times without avail. What might be done to help these patients?*

Thomas V. Judge, M.D., Orange, N. J.

Answer.—Hostile cervical mucus is a frequent cause of infertility. It is usually due to increased viscosity and is often produced by infection. It may be associated with a high endocervicitis that is amenable to antibiotic therapy or cautery, but the viscosity is more frequently due to lack of response to estrogenic stimulation just prior to ovulation. Theoretically, it is possible to bypass this obstruction to the penetration of spermatozoa by means of intrauterine insemination. However, this procedure is both technically difficult and potentially dangerous. Several months' trial with estrogenic hormones is indicated before any other form of therapy is attempted. Diethylstilbestrol therapy, 0.1 mg. daily during the first two weeks of the menstrual cycle, should be given. If this small dose does not produce the desired effect, it may be doubled, with the understanding that the latter dose may delay ovulation. Estrogens may also be administered by hypodermic injection: 5 mg. of estradiol benzoate between the 5th and 10th day of the cycle has been shown to be effective in thinning out the cervical mucus. A great deal has been published on the subject of hostile cervical mucus, especially in the *Journal of Fertility and Sterility.*

TREATMENT OF PARATHYROID TETANY

To the Editor:—*A 28-year-old woman, gravida 1, had a subtotal thyroidectomy in February, 1954, for a diffuse toxic goiter. A pathologist examined the specimen and found no evidence of parathyroid tissue. Nevertheless, the patient developed tetanic symptoms and a low blood calcium level (6.5 mg. per 100 cc.). She was treated with intravenously administered calcium and parathormone for several days with good response and then was gradually given oral doses of calcium lactate 20 grains (1.3 gm.) four times a day and 2 cc. of dihydrotachysterol every other day. After a month, the dosage of the dihydrotachysterol was gradually reduced to 1 cc., and after another month to once a week, but the dosage of calcium lactate was kept the same. Pregnancy intervened, and she carried a normal female infant to full term and had an uneventful delivery with saddle block anesthesia. She was maintained on the 20 grains (1.3 gm.) of calcium lactate and the weekly dose of 1 cc. of dihydrotachysterol throughout the pregnancy and shortly afterward. A blood calcium level taken post partum on the fourth day was 8.6 mg. per 100 cc. Lactation was promptly suppressed with stilbestrol. She went home symptom free. The dihydrotachysterol is now being given in doses of 1 cc. every three weeks, but any effort to cut the calcium lactate below 15 grains (1 gm.) three times a day results in numbness and tingling of the hands and feet. Now she is almost three months post partum, and she has begun to develop some joint pains, difficulty in straightening up from a sitting position, and some stiffness in the knees. I would appreciate suggestions.*

M.D., Michigan.

Answer.—It is common practice to treat parathyroid tetany by the method outlined in the case report. Dihydrotachysterol or vitamin D frequently is not required if the patient has received adequate amounts of calcium. It is considered good practice to give sufficient calcium to maintain the serum calcium level between 9 and 11 mg. per 100 cc., if possible. The effectiveness of treatment should be judged on the basis of control of blood calcium level—rather than on control of symptoms, because some patients fail to notice or will ignore a few mild symptoms or possibly have no symptoms most of the time despite abnormally low serum calcium levels. If the serum calcium level is not maintained within normal range, trophic disorders are more likely to develop. Changes such as those that occur in the nails and hair are reversible; development of cataract is not reversible and must be prevented. The following therapy is recommended. Calcium lactate powder, a level to slightly rounded teaspoonful, should be given three times a day. The powder can be easily prepared for effective administration by dissolving it in hot or boiling water, 1 teaspoonful to each glass of water. It usually can be prepared in the evening and then refrigerated until it is needed the following day. If the calcium lactate powder is not sufficient to raise the serum calcium level to normal range, dihydrotachysterol or vitamin D may be added in a dosage sufficient to do so. Vitamin D is thoroughly efficient; a dose from 50,000 to 150,000 units or more daily may be necessary. With this therapy, there is no evidence that metastatic calcification will occur, provided hypercalcemia does not exist. Hypercalcemia can be prevented by adjusting the treatment according to the serum calcium and phosphorus levels estimated at intervals of a few weeks or months, or if the patient watches for hypercalciuria by means of the Sulkowitch test.

MASS IMMUNIZATION

To the Editor:—*Are there any contraindications in giving tetanus toxoid and typhoid-paratyphoid in the same injection for mass immunization?*

Duane F. Hartshorn, M.D., Fort Collins, Colo.

Answer.—For effective immunizations there should be no objection to combining tetanus toxoid and typhoid-paratyphoid in the same injection. However there is always the possibility of having a rather severe reaction from typhoid-paratyphoid vaccine that someone might attribute to the mixture of antigens. A more important matter to consider for mass immunization is the requirement that a separate syringe as well as a different needle be used for each person. The danger of transmitting infectious hepatitis when there are multiple injections from the same syringe should not be overlooked nor ignored.

DRAINAGE FROM AMPUTATION STUMP

To the Editor:—*A patient had a midthigh amputation six months ago because of diabetic gangrene of the left leg. Diabetes is adequately controlled by diet and 20 to 25 units of Lente insulin daily. However, since her amputation there has been some mucopurulent drainage from three small places on the stump scar line that has not responded to treatment with broad spectrum antibiotics or penicillin. Culture from the drainage sites revealed Micrococcus (Staphylococcus) albus as the predominating organism. What suggestions have you to offer to stop the persistent drainage?*

James P. Landay, M.D., Duquesne, Pa.

Answer.—Persistent drainage in a stump following amputation for gangrene is likely to result from devitalized tissue left at the time of surgery. It is difficult to recognize muscle with a marginal blood supply. The edema following the surgical trauma is sufficient to impair the vitality of such tissue. Another source of drainage is the large pedicle distal to ligatures. The custom of stripping the periosteum from the femur prior to transection may devitalize bone. Bone chips from the saw may form the nidus. Drainage from any surgical wound may persist due to a foreign body left in the wound. Excessive numbers of large sutures, or even a sponge, may be suspected. Drainage occurs occasionally from a low-grade micrococcic infection of subcutaneous fat. Injection of the sinus with a contrast medium such as lipiodol may yield a clue as to the site of the difficulty. Gentle exploration of the sinus permits identification and removal of the cause with resultant healing.

AUSCULTATORY GAP

To the Editor:—*A man, aged 56, is physically essentially normal except for hypertension from 210 to 160 mm. Hg systolic and 110 to 90 mm. Hg diastolic. There is a complete loss of sound after a drop of 30 mm., recurring faintly at 40 mm. drop, and becoming normally audible again to the diastolic. I cannot rationalize this finding. Such applies only to right arm and in all positions.*

J. J. Blue, M.D., Cedarville, Mich.

Answer.—This is the phenomenon known as the auscultatory gap. If the cuffs are inflated rapidly so as to avoid venous congestion distal to the cuff, no gap occurs when the cuff is deflated. When inflation is done gradually, the gap is observed on deflation. Prolonged partial occlusion of the veins of the arm during the inflation of the cuff affects both arterial and venous pressure distal to the cuff and the effect on the arterial pressure seems to be the determining factor in eliciting the auscultatory gap. For details see C. Ragan and J. Bordley III (Measurements of Blood Pressure *Bull. Johns Hopkins Hosp.* 69:504, 1941).

MALE CLIMACTERIC

To the Editor:—*Is there such a condition as the male climacteric in a male aged 52 years that comes on suddenly with hot flashes, occasional slight temperature, nervousness, mental lassitude, burning of feet, and impotency? The 17-ketosteroids in a 24 hour urine specimen are above normal, and the remainder of the physical examination is normal. Large or small doses of androgens are of no help. Both androgens and estrogens are of no help in controlling the hot flashes and mental condition. Nothing improves the potency. Are males permanently impotent after the climacteric?*

M.D., Michigan.

Answer.—The onset of climacteric in the male is not sudden. A skull x-ray with particular reference to the sella turcica is indicated in all males who have unexplained loss of potentia. Testosterone propionate, intramuscularly, three times weekly for four to six weeks will restore lost potentia that is organic in origin but not psychic. Males are not permanently impotent after the climacteric. If no organic disease (systemic or local) is present, further psychiatric evaluation and treatment is indicated.

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SURGICAL CORRECTION OF TETRALOGY OF FALLOT

RESULTS IN FIRST ONE HUNDRED CASES SIX TO EIGHT YEARS AFTER OPERATION

Willis J. Potts, M.D., Stanley Gibson, M.D., Chicago
Edward Berman, M.D., Indianapolis, Harvey White, M.D.
and
Robert A. Miller, M.D., Chicago

On Friday, Sept. 13, 1946, the first aortic-pulmonary anastomosis was performed at the Children's Memorial Hospital for relief of cyanosis due to tetralogy of Fallot.[1] This operation varies from that originally devised by Blalock and Taussig[2] in 1945 in that blood is shunted into the pulmonary circulation directly from the aorta instead of by means of the subclavian artery. The principle of each operation is the same. "What has happened to the children who have had a shunt operation for Fallot's tetralogy?" is frequently asked. To obtain a tentative answer to this question we have made follow-up studies of the first 100 consecutive patients operated upon at the Children's Memorial Hospital. We have included all patients with a diagnosis of tetralogy of Fallot upon whom some form of anastomosis could be performed. We have excluded those who, because of tiny or absent pulmonary arteries, had exploratory operations only. Obviously, it is impossible at this time even to suggest actuarial statistics, since only six to eight years have elapsed between the operations and the study. Immediate and late mortality figures thus far are specific; evaluation of the condition of those who have survived until now is a matter of opinion based upon our clinical and laboratory examinations.

These patients came from many states and Canada, the British Isles, Europe, and Israel. By good fortune and some persistence, we have been able to follow every living patient and to obtain reports on the causes of death of those who died after leaving the hospital. Our objective in this study has been to evaluate the results of operations primarily from clinical and roentgenologic examinations. Electrocardiographic studies and simple laboratory examinations were routinely made, but complicated precedures, such as cardiac catheterization and angiocardiograms, were not part of the follow-up program.

PREOPERATIVE EVALUATION OF PATIENTS

When cardiac surgery for heart disease with cyanosis was started in 1945 and 1946, there were many children in rather desperate condition who had somehow remained alive. This group and a considerable number of smaller children for whom aortic-pulmonary anastomosis was especially devised comprised the first 100 cases.

Age.—In this series 35 patients were between 4 and 36 months of age and 65 were between 3 and 16 years at the time of operation. Age is an especially important factor in mortality and clinical results. The child who in the first year of life becomes severely cyanosed and has attacks of dyspnea and unconsciousness obviously has a severe degree of stenosis. Such children die at an early age without surgery, and those who survive operation are not apt to have as good results as those children whose early symptoms are less severe. It has always been our policy to refuse operation to no child regardless of age or condition, provided a diagnosis of diminished blood flow to the lungs can be made. Operation is delayed in smaller children if their clinical condition indicates waiting is safe.

Blood Findings.—The average red blood cell count before operation was 7,100,000 per cubic millimeter; the highest was 11,000,000. The average hemoglobin reading was 18.5 gm. per 100 cc. Both dropped precipitously after successful operation—the red blood cell count to approximately 5,000,000 per cubic millimeter and the hemoglobin level to approximately 15 gm. per 100 cc., where they remained in those patients whose cyanosis was largely relieved. A slow rise to previous levels was observed in four patients who required second operations.

Preoperative Risks.—Evaluation of the anesthetic risk was made by the anesthesiologist, Dr. William O.

From the Children's Memorial Hospital.

[1] Potts, W. J.; Smith, S., and Gibson, S.: Anastomosis of the Aorta to a Pulmonary Artery: Certain Types in Congenital Heart Disease, J. A. M. A. 132: 627-631 (Nov. 16) 1946.

[2] Blalock, A., and Taussig, H. B.: The Surgical Treatment of Malformations of the Heart in Which There Is Pulmonary Stenosis or Pulmonary Atresia, J. A. M. A. 128: 189-202 (May 19) 1945.

McQuiston. Because of the figures that follow, one might suppose that the anesthesiologist was a bit pessimistic, or, with a view towards self-protection, made a rather dismal appraisal of each patient. In support of his analysis, one must bear in mind that, in the early days of surgery for tetralogy of Fallot, the percentage of markedly cyanosed children was high. In reviewing the cases we are inclined to agree with his evaluation. Preoperatively, 40 patients were classed fair to good risks and 60 as poor to bad. If one classifies a normal child who is to have repair of an inguinal hernia as an excellent anesthetic risk and a child with bronchiectasis who is to have a lobectomy as a good risk, it seems only proper to place the child with severe cyanosis with low respiratory reserve in a lower classification.

OPERATION

An aortic-pulmonary anastomosis was performed in 99 patients and a subclavian pulmonary anastomosis in one. The aorta arched to the left in 81 patients and to the right in 19. As a matter of fact, the subclavian pulmonary anastomosis performed on the 99th patient closed (see case 4 below). Actually, therefore, this becomes a study of the late results of aortic-pulmonary anastomosis. At first we persisted in doing aortic-pulmonary anastomoses on all patients with tetralogy of Fallot regardless of whether the aortic arch curved right or left. It then became and still is our policy to enter the chest on the left side in all patients above one year of age. If the descending aorta is on the left side, an aortic-pulmonary anastomosis is preferred; if the arch curves to the right, the innominate artery will be on the left, and a subclavian-pulmonary anastomosis on the left side is performed, because it is far simpler technically than an aortic-pulmonary anastomosis on the right side. We now perform aortic-pulmonary anastomoses on the right side only in infants whose condition is such that immediate operation is imperative.

The size of the anastomotic channel in an aortic-pulmonary anastomosis is easily controllable. In our early cases, incisions in the aorta and the pulmonary artery preparatory to anastomosis were made 0.31 in. (8 mm.) long, giving an anastomotic channel 5 mm. in diameter. Marked enlargement of the heart in one patient prompted us to shorten the incision to 0.25 in. (6.3 mm.). Such incisions produce an anastomotic channel 4 mm. in diameter. We still continue to make the incisions 6.3 mm. long in all children except infants, in whom they are made 5 mm. long because we anticipated considerable growth of the anastomotic channel.[3] In each instance the length of the incision is carefully measured with a caliper. That more children in the first few cases in whom incisions in the vessels preparatory to anastomosis were made 8 mm. long have not developed excessive enlargement of the heart is most likely due to the fact that suturing then was rather poorly done. Anxiety about bleeding and inexperience prompted us to sew rather snugly, and, in so doing, we undoubtedly—and fortunately—constricted the anastomotic channel somewhat. All anastomoses were made with 00000 Deknatel silk and still are in most cases. However, in infants in whom the vessels are small and in older children who are to have a subclavian-pulmonary anastomosis and whose subclavian arteries are small, 000000 silk is used to lessen the amount of foreign material in the apposed vessels.

Four patients required second operations to relieve recurrent cyanosis.

CASE 1.—A patient, aged 8, had upon admission in 1948 a red blood cell count of 7,300,000 per cubic millimeter and a hemoglobin level of 23 gm. per 100 cc. An aortic-pulmonary anastomosis was performed on the right side under difficulties. Severe hemothorax and pneumothorax complicated the postoperative period. Improvement was minimal and temporary. Two years later a subclavian-pulmonary anastomosis on the left side was followed by a good result.

CASE 2.—A patient, aged 6, a good risk, had an aortic-pulmonary anastomosis on the left side in 1948. Fragmentation of the aorta occurred during the anastomosis. An extra stitch was required to close the rent. When the clamps were removed, there was a barely palpable thrill. Postoperative improvement was questionable. Symptoms recurred, and a subclavian-pulmonary anastomosis was done in California in 1951. The final result was fair.

CASE 3.—A patient, aged 3 years, a fair risk, had an aortic-pulmonary anastomosis on the right side in 1947. For three months the child did well, but then the diastolic phase of the murmur disappeared and cyanosis recurred. In 1949 a subclavian-pulmonary anastomosis was performed on the left side. Immediate improvement was again followed by disappearance of the diastolic murmur and recurrence of cyanosis. At the time of this study, the boy had not improved. The mother made an astute observation. Marked keloid formation of the skin followed each operation, and on the boy's arm a hard, large keloid persisted as a sequel to vaccination during early childhood. The mother wondered whether this tendency toward keloid formation might have caused both anastomoses to close.

CASE 4.—A 4-month-old child who was admitted in 1948 was rather severely handicapped with tetralogy of Fallot and a left aortic arch. The chest was opened on the left, but an aortic-pulmonary anastomosis was impossible because the pulmonary artery was very short. The subclavian artery was sutured to the side of the pulmonary artery. Because the subclavian artery was unusually large, it was constricted slightly by drawing the anastomotic suture more snugly than usual. We believe from later experience that constriction of the subclavian artery at the site of its anastomosis to the pulmonary artery is apt to lead to thrombosis, probably due to excessive eddies in the blood stream. The child was improved, but cyanosis slowly recurred and the diastolic phase of the murmur disappeared. In 1953 a subclavian-pulmonary anastomosis was performed on the right side with a good result.

To the best of our knowledge, the second case cited above is the only one in which the anastomotic channel closed following aortic-pulmonary anastomosis on the left side in a patient who survived operation for tetralogy of Fallot. However, the anastomotic channel closed in two instances of aortic-pulmonary anastomosis performed on the right side.

MORTALITY

In the first 100 patients operated upon for tetralogy of Fallot, there were nine hospital deaths. In 35 children from 4 to 36 months of age, there were six deaths, or a mortality of 17%. In 65 children between 3 and 16 years, inclusive, there were three deaths, or a mortality of 4.6%. The causes of death were as follows: anoxia, three; tension pneumothorax, one; septicemia and intracranial hemorrhage, one; cerebral hemorrhage, one; subacute bacterial endarteritis and septicemia, one; thrombosis at site of anastomosis and saddle embolus occluding the aorta, one; multiple anomalies of the heart and great vessels, one. The mortality in approximately 200 patients from 2 weeks to 3 years of age operated upon to date is 15.3%, and in about the same number of children from 3 to 16 years of age, the mortality is now 3.6%. It is well recognized that the mortality in small children will be high, as they are operated upon at this age only because they cannot otherwise survive. Discussion of mortality statistics following operations for tetralogy of Fallot is futile, unless the ages of the patients are taken into consideration.

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[3] Potts, W. J., and Riker, W. L.: Study of Growth of Aortic-Pulmonary Anastomoses, Surg., Gynec. & Obst. 94:358-360 (March) 1952.

Five patients died after leaving the hospital. All showed varying degrees of improvement but died of the causes described below.

CASE 5.—A patient, aged 2½ years and weighing 23 lb. (10 kg.), who had been deeply cyanosed since birth and required almost constant oxygen, had an aortic-pulmonary anastomosis on the right side in 1947. Her recovery was uneventful and dramatic. Following chickenpox, measles, and two attacks of pneumonia and atelectasis, she died of chronic pulmonary infection in October, 1950. Her color had remained good, and the continuous murmur had persisted.

CASE 6.—A patient, aged 1½ years, was a puny, helpless child who had weighed 15 lb. (6,804 gm.) and had a red blood cell count of only 5,000,000 per cubic millimeter. An aortic-pulmonary anastomosis was done in 1947. The postoperative course was complicated by pneumonia. On follow-up visits one and two years after surgery, a continuous murmur was heard. The child was improved but never robust. The heart was 50% enlarged two years after surgery. The family physician reported that the child died of pneumonia at home shortly after the last visit.

TABLE 1.—*Results Six to Eight Years After Aortic-Pulmonary Anastomosis for Tetralogy of Fallot*

	No. or %
Group 1: Good	68
Group 2: Fair	16
Group 3: Poor	1
Group 4: Unchanged	1
Group 5: Improved, but died later	6
Group 6: Hospital mortality	9
Total	100

CASE 7.—A 7-year-old patient, a good risk, who was able to walk about one-half block before squatting and had a red blood cell count of 6,500,000 per cubic millimeter, had an aortic-pulmonary anastomosis in 1947. Following operation he was well and very active. At the one year check-up examination, there was a continuous murmur, and the heart showed 10% enlargement. He died at home of acute rheumatic fever one year later, according to his family physician.

CASE 8.—A patient, aged 2½ years, with a red blood cell count of 8,300,000 per cubic millimeter, was admitted on Oct. 18, 1947. For three months prior to admission she had had unexplained intermittent fever diagnosed as subacute bacterial endocarditis, although repeated cultures were negative. After an afebrile period, an aortic-pulmonary anastomosis was performed Oct. 21, 1947, and was followed by uneventful recovery and marked improvement until Feb. 19, 1948, when she was readmitted with high fever and findings suggestive of a brain abscess on the right side. She died seven days later and, at postmortem examination, a large brain abscess was found in the right cerebral hemisphere. In retrospect, we believe that the child had an unrecognized brain abscess before operation and that it later flared up with a fatal result. The aortic-pulmonary anastomotic channel was clear and measured 4.5 mm. in diameter.

CASE 9.—A patient, aged 7 months, weighing 12 lb. (5.4 kg.), who had been cyanosed since birth, was admitted with a diagnosis of tetralogy of Fallot. An aortic-pulmonary anastomosis was performed March 24, 1948, and, because the aorta and pulmonary artery were very small, the anastomotic channel was made only 3 mm. in diameter. The child did well after operation. At the six month check-up examination there was a continuous murmur and the heart showed only 10% enlargement; however, about a year later she began having "heart attacks" and died at her home two years after operation, presumably of heart failure.

CLINICAL EVALUATION

Our prime interest in this study was to determine the clinical results in those 86 patients alive six to eight years following aortic-pulmonary anastomosis for tetralogy of Fallot. Follow-up studies included clinical evaluation of every patient. Many patients have been seen every year since operation. Patients living in foreign countries and in states far removed from Chicago were evaluated by reports from parents and physicians, who cooperated enthusiastically. Repeated róentgenograms of the heart were made of patients living in and about Chicago and were compared with previous films. Electrocardiograms likewise were part of the checkup routine. The large majority of patients were seen and evaluated personally by at least five peoeple.

It is obviously impossible to fashion an accurate measuring device for evaluation when dealing with such intangibles as parental pride, comparison of physical condition "before and after" operation, and the patient's own desire to be considered normal and therefore free from restraints. It was decided to place in group 1 children who show little or no visible cyanosis when at rest and slight cyanosis after exercise; who are able to attend public school, play, ride bicycles; and who, in general, do what other children of their age do, with the exception of violent exercise. (Recognizing that no child's heart is normal after any operation for tetralogy of Fallot even though all visible signs of cyanosis have disappeared, it has routinely been our advice that all competitive athletics be avoided after operation. Not all have heeded our advice.)

In group 1 were placed 68 children. It was interesting to observe that residents and fellows in cardiology were inclined to place children in a higher category of improvement than those who had been active in their treatment. All of these children had the characteristic continuous murmur of a functioning artificial ductus. One boy, aged 11, operated upon in 1947, who was deeply cyanosed before operation, was asked before leaving the hospital what he intended to do when he returned home. His unhesitating reply was "Beat up the boys who used to call me 'blue lips.' " When he returned for check-up examination seven years later he reported, "Mission accomplished." Furthermore, he now caddies during the summer months and boasts that on the hilly course he can caddy double and keep up with the other boys. The heart is truly "tough." Included in this group is a boy now 17 years of age, operated upon when he was 9, who, clinically, has an excellent result. His x-ray film, however, shows an aneurysmal dilatation of the left pulmonary artery. We consider his future uncertain. Another child was well for six years after operation and has recently recovered from what was interpreted by the family physician as bacterial endocarditis. To our knowledge, this is the only case of late bacterial invasion of the vessels in this series of living patients. In general, these children and young adults live more or less normal lives; they walk to school, climb stairs, and chafe under the restrictions placed upon them by their parents. Many, however, will admit under pointed questioning that they tire more easily than their schoolmates.

In group 2 were placed those children who are moderately handicapped. They tire easily on moderate exertion. Some have persistent mild cyanosis when at rest, but all become cyanosed upon exertion or when fatigued. They are excused from all gymnasium work. In this group were placed 16 children. All show moderate to marked improvement over their condition before surgery. All but one have the characteristic continuous murmur. In group 3, the severely handicapped, is one patient; a 13-year-old girl who was operated upon in January, 1947. Because she had been bedridden for two years before surgery, a large anastomosis, 6 mm. in diameter, was made. She was promptly relieved of all cyanosis. The following summer she went on a vacation to Yellowstone Park, where she was allowed to run and climb as she wished. At the first check-up examination nine months after surgery, her heart was tremendously enlarged, and before the end of the year she went into heart failure. She has been in heart failure a number of times since then and goes to a school for the handicapped. Her heart remained the same size for seven years. During the past year her heart has decreased from 125% to 60% enlargement. She has developed an aneurysm of the left pulmonary artery, and, presumably because of this, the diastolic phase of the murmur disappeared. She continues to be free from cyanosis but, obviously, has a poor prognosis. Why her heart has decreased in size we do not know. In group 4, the unimproved, is one patient (case 3) who had two operations. Each operation was followed by only temporary improvement. The remaining 14 patients have been discussed in the section on mortality.

TABLE 2.—*Cardiac Enlargement Six to Eight Years After Aortic-Pulmonary Anastomosis*

No. of Patients	%*	Clinical Estimate
13	0-15	Little or none
15	15-30	Slight
14	30-50	Moderate
6	50-75	Large
3	75-100	Very large

* Measured according to Meyer's[4] method.

ROENTGENOGRAPHIC FINDINGS

Although roentgenograms were obtained after the operation in the majority of patients, some of the films were inadequate for comparative studies, and occasionally we could obtain reports only without films. Measurements of heart size were made according to the method of Meyer.[4] His method is based on the work of Hodges, Adams, and Gordon,[5] who correlated the height and weight of a child with the size of the heart. Meyer simply measures the long and short diameter of the heart, correlates these with height and weight in children, and expresses degrees of enlargement in percentages. This method of calculating percentages of cardiac enlargement is undoubtedly more accurate than comparisons of the cardiothoracic ratios. All his studies, however, were made on children over 3 years of age. Recognizing that in growing children, especially in smaller children under 3 years of age, comparison of heart size from year to year is not mathematically infallible, we have interpreted to the best of our ability the roentgen studies of heart size as listed in the table. In 51 of the 86 children who survived for six to eight years following surgery, adequate data was available for fairly accurate measurements. It will be noted in table 2 that we have listed percentages of enlargement as calculated by one of us (H. W.), along with common descriptive terms used by clinicians.

It is a curious fact that, although these children all had approximately the same operations, there is such a discrepancy in the degree of cardiac enlargement following surgery. We can only assume that the size of the anastomoses varied somewhat in spite of careful measurement with calipers of the incision in the vessels or that the anastomosis increased in size more in some patients than in others. Variation in the uncorrected pathology inside the heart may also be a factor.

When comparing clinical and roentgenographic findings, it is at once apparent that we have placed only one child in group 3, the severely handicapped, and yet report a number of children whose hearts are markedly enlarged. Roentgenographic and clinical interpretations were made separately and then compared. Even after seeing the large hearts as shown on the films we could not place these children anywhere but in group 1 because, clinically, they are well and have at no time shown signs of cardiac embarrassment. In fact, one boy now a sophomore in high school has actually, though unwisely, gone out for track work. None show cyanosis except with vigorous exercise. These hearts became large rather promptly after operation and have remained approximately the same size for six to eight years. We debated long into which classification we should place those children who have very large hearts and considered that they belong in group 1 so long as they are clinically well and active. A few children with typical postoperative continuous murmurs and little enlargement of their hearts, nevertheless, have only fair clinical results and were placed in group 2. Heart size after operations for tetralogy of Fallot is undoubtedly an important factor in ultimate prognosis but is not a guide in early results, that is, for six to eight years. What the heart muscle unhampered by disease of its vessels can do is constantly astounding.

ELECTROCARDIOGRAPHIC FINDINGS

Of 86 patients living at the time of this study, 50 had satisfactory preoperative and postoperative multiple lead electrocardiograms that were adequate for comparable studies. Interpretation of electrocardiographic tracings in children taken over a period of six to eight years must be made with the understanding that electrocardiograms constantly change with growth, especially during the first five years of life. Twenty-eight patients (56%) had changes in the electrocardiogram that were

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[4] Meyer, R. R.: A Method for Measuring Children's Hearts, Radiology **53**: 363-370 (Sept.) 1949.

[5] Hodges, P. C.; Adams, W., and Gordon, W.: Estimation of Cardiac Area in Children, J. A. M. A. **101**: 914-916 (Sept. 16) 1933.

thought to be related to the operative procedure. Changes were limited to the P waves in 14. Within six months to one year after surgery the peaked, prominent "P congenitale" in leads 2 and 3 became much smaller or assumed normal contour. Changes in contour of QRS, S-T segment, or T wave appeared in 14. In six of these the R wave became smaller over the right chest leads, the QRS in lead 1 changed from inverted to diphasic or small and upright and the S wave over the chest leads became smaller. That is, electrocardiographic evidence of strain of the right side of the heart decreased over the years in these six patients without evidence of left ventricular hypertrophy.

Definite evidence of combined heart strain appeared after operation in six children. Evidence of a tall RR′ pattern or delayed intrinsicoid deflection in the right chest leads, with a tall R wave, depressed S-T segment, and low amplitude, flat or inverted T waves over the left side of the chest were considered evidence of combined heart strain or biventricular hypertrophy. It is worthy of note that only two of the children who have marked postoperative enlargement of the heart are in this group of six who show electrocardiographic evidence of combined heart strain. One patient developed progressive lengthening of the PR interval from 0.10 to 0.28 second over a period of five years. Significant but nonspecific QRS changes in the limb leads appeared in one patient. The general impression derived from this study was that, aside from six patients who developed a pattern of combined heart strain, the electrocardiographic changes over the years after aortic-pulmonary anastomosis revealed few significant changes.

COMMENT

In this interim report of the first 100 consecutive patients operated upon at the Children's Memorial Hospital for tetralogy of Fallot, we have tried to give a fair appraisal of results but recognize, first, that our collection of data left something to be desired. Although the large majority of patients were seen and examined, we had to be satisfied with telephone conversations with or questionnaires from patients for whom it was not possible to travel long distances to Chicago. It is well recognized that parents quite naturally shade their opinions in favor of good reports concerning their children. Second, we recognize that when dealing with an intangible factor such as clinical evaluation of a patient—in spite of the intended stern attitude of impersonal appraisal—the examiner is bound to be influenced favorably by the swaggering, enthusiastic boy and the bright-eyed girl in a crisply starched dress. Allowing for our prejudices, we believe we have given a rather fair analysis of the patients who survived following operation for tetralogy of Fallot.

SUMMARY

In a follow-up study of 100 children operated on for tetralogy of Fallot, results six to eight years after operation were good in 68% and fair in 16% of cases. One patient was classified as having a poor result and one as unchanged. Fourteen patients have died; five of these improved after operation but died later. The hospital mortality was 9%.

707 Fullerton Ave. (Dr. Potts).

LIVER FUNCTION AND HEPATIC COMPLICATIONS IN PATIENTS RECEIVING CHLORPROMAZINE

Irvin M. Cohen, M.D.
and
John D. Archer, M.D., Galveston, Texas

The use of chlorpromazine [Thorazine, 10-(γ-dimethylaminopropyl)-2-chlorophenothiazine hydrochloride] is occasionally complicated by the development of jaundice. In our series of over 800 patients treated with this drug, 5 such cases have occurred. Results of laboratory studies in these instances have consistently indicated an obstructive process within the biliary system. The complication has proved to be benign, the ensuing clinical courses being characterized by rapid resolution of symptoms and uneventful recovery. Though this side-reaction occurred only rarely and was apparently confined to the bile passages, we believed that the possibility of damage to the liver cells demanded further investigation. Of particular concern to us was the question of whether patients receiving the drug over relatively long periods of time sustained subclinical liver damage. The presence of the phenothiazine nucleus in chlorpromazine further suggested the need for this determination, since phenothiazine itself, in sufficiently high dosage, has been reported to produce liver disease.[1]

The aim of the study, therefore, was to ascertain (1) whether chlorpromazine represented a highly specific hepatotoxin and, if so, the site of damage, or (2) whether liver involvement was simply a random effect that could be expected to occur in a certain number of patients hypersensitive to the drug. Though definitive conclusions must await further study, the results that follow represent impressions derived from a preliminary investigation of these questions.

MATERIAL

The study included a total of 89 patients, all of whom were being treated for psychiatric illnesses of various clinical types. In no case was there a history of liver dis-

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From the departments of neurology and psychiatry and pharmacology, University of Texas Medical Branch.

Read at the joint meeting of the Mexican Neuropsychiatric Society and the Texas Neuropsychiatric Association, Galveston, Texas, Oct. 25-26, 1954.

[1] Hubble, D.: Toxicity of Phenothiazine, Lancet 2: 600-601 (Nov. 15) 1941.

ease, and physical examinations had revealed no findings of contributory significance. For purposes of this report the patients are divided into three groups. Group 1 consists of five cases in which clinically evident jaundice developed. Table 1 shows age and sex distribution, diagnosis, the presence or absence of allergic history, and other complications that developed during the course of therapy. Table 2 shows duration of administration of chlorpromazine prior to appearance of icterus; minimum, maximum, and average doses that had been given; and route of administration. Group 2 consists of 14 patients who were subjected to an extensive battery of liver function studies prior to and during the administration of a generally constant dose of chlorpromazine for periods of time varying from two to six weeks. Group 3 consists of 70 cases in which less extensive liver function studies were done prior to and during treatment. Dosage and duration of administration varied widely in this group.

METHOD

Group 1.—Pretreatment liver function studies had been obtained in three of the five patients in whom jaundice subsequently developed; all had been reported as being normal. In one case the control study had revealed spotty but minimal evidence of hepatic disease. Chlorpromazine was then instituted at low dosage levels and increased progressively as the case warranted. Maximum daily dosage ranged from 100 to 1,000 mg. Use of the drug was immediately discontinued when jaundice became apparent, and serial laboratory tests were done frequently thereafter. These included quantitative van den Bergh determinations, serum alkaline phosphatase, blood cholesterol, urine bilirubin and urobilinogen, cephalin-cholesterol flocculation, thymol turbidity, total serum proteins with albumin-globulin ratio, prothrombin time, and sulfobromophthalein (Bromsulphalein) retention. All tests listed were not done in all patients.

Group 2.—In group 2, 14 patients were given chlorpromazine for varying periods that averaged more than one month. Ten received 25 mg. orally three times a day; four received doses that varied from 25 to 100 mg. given two to four times a day. To detect any possible early biliary obstruction or change in hepatocellular function, the patients were followed at regular intervals with tests of liver function. Typically, these tests consisted of (1) thymol turbidity determinations twice weekly, (2) 48-hour cephalin-cholesterol flocculation determinations twice weekly, (3) direct serum bilirubin determinations twice weekly, (4) urinary bilirubin and urobilinogen determinations three times weekly, and (5) a determination of sulfobromophthalein retention once before or near the beginning of chlorpromazine therapy and at least once after or near the end of therapy. Occasional exceptions to this procedure occurred, most of which were in the nature of laboratory or nursing errors, but these exceptions were taken into consideration in the evaluation of the results. Two pretreatment control studies were obtained in 10 of the 14 patients, one control study was obtained in one patient, and no pretreatment controls were done in the remaining three patients.

TABLE 1.—*Descriptive Data on Patients Developing Jaundice During Chlorpromazine Therapy*

Case	Age, Yr.	Sex	Diagnosis	Allergic History	Associated Complications
1	21	F	Hysterical character	....	......
2	22	M	Situational reaction	Yes	Rash
3	30	M	Phobic neurosis	....	......
4	34	F	Chronic schizophrenia	Yes	Rash
5	43	M	Chronic schizophrenia	?	......

TABLE 2.—*Therapeutic Regimen in Patients Developing Jaundice During Chlorpromazine Therapy*

Case	Duration of Therapy,* Days	Dose per Day, Mg.			Route of Administration
		Minimum	Maximum	Average	
1	8	200	300	210	Oral
2	17	100	200	123	Oral
3	21	150	200	160	Oral
4	22	150	1,000	660	Oral-I.M.
5	20	200	800	320	Oral-I.M.

* Prior to development of icterus.

Group 3.—The third group, 70 patients, received chlorpromazine for varying periods of time and in varying dosage totals. The average duration was one month, with a range of one week to five months. Dosage ranged from 100 to 1,000 mg. daily. The usual procedure was to initiate therapy at a dose of 25 mg. four times a day, after which it was increased to therapeutically effective level and then reduced. The average maximum reached was 800 mg. daily. Pretreatment controls were obtained in each case and consisted of tests for serum bilirubin cephalin-cholesterol flocculation, and total serum proteins with albumin-globulin ratio. If there was suggestive evidence of any abnormality, further tests were done which included sulfobromophthalein retention and thymol turbidity tests. Thereafter serum bilirubin determinations were done weekly on all patients. In the event of a rise in serum bilirubin level, more extensive tests followed.

RESULTS

Jaundice.—The occurrence of jaundice was erratic appearing sporadically in relatively widespread areas and at various times. An infectious factor was thought to be of little probability. There was no correlation among the factors of age, sex, and diagnosis. The total daily dose did not appear to be a significant factor. The route o administration was usually oral; two of the patients had received the drug intramuscularly during the early phases of treatment. One factor that may be of significance was noted in two of the five cases. In both there was a definite history of allergic skin reactions; both patients developed dermatitis and jaundice during the course of chlorpromazine therapy.

In the majority of cases icterus appeared approximately three weeks after chlorpromazine therapy had been instituted. With the exception of one patient in whom there was a generalized maculopapular eruption, no unusual side-reactions had previously occurred. Premonitory symptoms of the jaundice were generally very mild; the patients, though experiencing general malaise, were in no great distress. In several instances if icterus had not appeared the complication might have escaped detection, for often the complaints were at first attributed to the psychiatric condition. Symptoms usually consisted of persistent or intermittent nausea, vague abdominal pain, and occasionally vomiting. In three patients there was sudden elevation of temperature, which ranged from

100 to 102 F. One patient simultaneously developed a generalized urticaria. Generally these symptoms preceded the appearance of icterus by three to five days, although in one patient there was a two week lag and in another there were no prodromal signs.

The succeeding clinical course in each case was uneventful, disturbing symptoms disappearing within several days, icterus clearing within two to three weeks. Treatment was of a supportive nature, consisting mainly of withdrawal of the drug, intravenously administered glucose when indicated, therapeutic vitamin regimen, and high carbohydrate–high protein–low fat diet. Laboratory findings were characteristically those of obstructive jaundice, with hyperbilirubinemia, elevated serum alkaline phosphatase level and bilirubinuria. Cellular function did not appear to be impaired as determined by cephalin-cholesterol flocculation, thymol turbidity, and total serum proteins with albumin-globulin ratio. Unfortunately, in only one case was prothrombin time obtained; in this instance it was 100% of normal. Chlorpromazine therapy was later reinstituted in one patient who had previously developed both dermatitis and jaundice while taking a total daily dose of 1,000 mg. Neither complication recurred, and liver function tests remained normal.

Hepatotoxic Studies.—There was no evidence that hepatotoxic effects were occurring in the 84 patients studied for possible change in hepatocellular function. In the series of 14 patients who were closely followed by means of comprehensive batteries of liver function tests, there was no clinical or laboratory evidence of development of hepatic dysfunction. Bile excretion, as indicated by determinations of serum bilirubin, urinary bilirubin, and urinary urobilinogen, was not disturbed. Cellular function was likewise not impaired. Isolated increases in cephalin-cholesterol flocculation to abnormal levels (2+ to 3+) occurred during the course of treatment of four of the patients; however, the remainder of their tests were normal, and we were confident that they were experiencing no hepatocellular damage from therapy. Thymol turbidity units varied greatly, although variations generally remained within normal limits. The averages between the control studies and the studies during treatment were in most cases remarkably consistent. Only two patients ever showed thymol turbidity values greater than the normal 5 units. In one values ranged from 4 to 10 units. The mean before treatment had been 5.0; the mean during treatment was 6.2. In the other case a single elevation occurred 23 days after treatment had begun, but subsequent determinations were consistently within normal limits. In both these cases the possibility of liver involvement was discounted on the basis that all other tests remained normal. In the group of 70 patients in whom less extensive liver function studies were done, no changes of significance occurred. Serum bilirubin levels remained normal throughout the duration of therapy in all but three patients. Each of the latter showed a single elevation during the course of therapy, but more extensive batteries failed to corroborate this finding.

COMMENT

On the basis of results obtained in this study it would appear that under ordinary circumstances chlorpromazine *does not interfere with normal liver function.* There is furthermore no evidence that the drug is injurious to the liver cells, even on prolonged administration. *This report has necessarily included only patients* who were followed by serial tests of hepatic function. Not included are over 700 patients, some of whom have been taking the drug for as long as six months, who have manifested no clinical symptoms of liver involvement throughout the duration of therapy.

We are of the opinion that the development of jaundice is an expression of individual drug idiosyncrasy. We have been unable to correlate the appearance of this complication with any factors that we have considered. The process is apparently confined to the bile passages, the liver parenchyma being spared. Although our deductions are based solely on the results of biochemical tests, studies of liver biopsy material by others[2] have revealed occlusion of the biliary canaliculi with stasis of bile and varying degrees of inflammatory cell infiltration but no *parenchymatous change. Chlorpromazine therapy was* reinstituted in one of our patients who had previously developed jaundice, without recurrence. This feature further suggests that rather than toxic specificity of the drug itself, an idiosyncratic, or perhaps allergic, factor exists. Another possible clew may lie in the finding that the only two patients in our series who developed both dermatitis and jaundice had shown allergic reactions to other chemicals in the past. We consider that chlorpromazine is not a specific hepatotoxin and that, in the absence of extenuating factors such as hypersensitivity, hepatocellular function and bile excretion will remain undisturbed.

CONCLUSIONS

Jaundice is an infrequent complication of chlorpromazine [10-(γ-dimethylaminopropyl)-2-chlorophenothiazine hydrochloride] therapy and is believed to be an expression of individual drug idiosyncrasy. The jaundice appears to be due to obstruction within the intrahepatic bile passages, hepatocellular function remaining unimpaired. Preliminary investigation suggests that under ordinary circumstances chlorpromazine is not hepatotoxic and can be administered over prolonged periods of time without undue risk.

1014 Strand (Dr. Cohen).

[2] Lemire, R. E., and Mitchell, R. A.: Regurgitation Type Jaundice Associated with Chlorpromazine ("Thorazine," SKF 2601-A) Administration, Proc. Central Soc. Clin. Res. 27:70 (Oct.) 1954.

Treatment of Acne.—Oral antibiotics remain a useful adjunct in the management of pustular acne. Relapses of the infection are frequent and require repeated courses of therapy. Tetracycline, erythromycin, and carbomycin are effective agents in controlling the pyogenic element of acne. They are well tolerated, with a minimum of side-reactions. Micrococcus pyogenes cultured from [an] acne patient did not show a high sensitivity to erythromycin but evidenced no resistance to it. Erythromycin must be used longer than tetracycline to produce improvement. Carbomycin required even higher doses and more prolonged therapy to be effective. Conventional dermatologic therapy enhanced further the clinical results and the administration of Staphylococcus toxoid also aided in reducing the infectious element.—F. T. Becker, M.D., and M. G. Fredricks, M.D., Evaluation of Antibiotics in the Control of Pustular Acne Vulgaris, *A. M. A. Archives of Dermatology and Syphilology,* *August, 1955.*

CORTISONE IN IMMEDIATE THERAPY OF APOPLECTIC STROKE

Henry I. Russek, M.D., Staten Island, N. Y., Allen S. Russek, M.D., New York
and
Burton L. Zohman, M.D., Brooklyn, N. Y.

Cerebrovascular diseases still remain among those most neglected because of the fatalistic philosophy commonly associated with their management. It is estimated that there are approximately 1,800,000 sufferers from this affliction in the United States today and that a large percentage of these require one to four persons to take care of their needs.[1] In recent years progress has been made in restoring many such patients to lives of independence and productivity, as a result of the application of modern methods of rehabilitation and retraining.[2] The advances in the therapy of residual paralytic defects by physical methods, however, have far exceeded the questionable gains in the treatment of the acute phase of the cerebrovascular accident.

METHODS OF TREATMENT

The immediate treatment of "stroke" is mainly devoted to measures for saving life and restoring physiological balance. All authorities stress the importance of skillfull nursing care, maintenance of hydration, attention to bladder and bowels, and the prevention of hypostatic pneumonia. In most places the conventional form of therapy is still largely one of expectancy on the part of patients and physicians as well. The current attitude toward therapy has been summarized by Alvarez [3] in a recent editorial as follows: "The best treatment for cerebral thrombosis is an expectant one. We all know that in many of these cases a weakness of the arm or leg clears up, and often aphasia disappears almost entirely. This recovery may be due to subsidence of edema of the brain or it may be due to rerouting of impulses around the destroyed area of the brain tissue."

Nevertheless, despite the recognition that return of function often occurs spontaneously, owing to a clearing of cerebral edema and improvement in cerebral blood flow, there is discontent with the necessity for awaiting expectantly the final and unalterable decree of nature. The hope of decreasing the degree of neurological residua has stimulated interest in a more active treatment of cerebrovascular occlusions. Frequent attempts have bee made to improve the cerebral circulation in such patien by the administration of vasodilator drugs, by the inje tion of procaine into the stellate ganglion, and by the a ministration of anticoagulants. Drugs of the vasodilat group have been found of little value for treatment organic occlusion of the cerebral vessels; on theoretic grounds alone, there is little to suggest that any lasti benefit could result from a short period of vasodilatio When neurological signs and symptoms are the result transient cerebral vasospasm, however, large doses papaverine (0.1 to 0.3 gm., three or four times a day) have great value in the prevention of recurrences.[4] It h been argued that these phenomena are due to minu thrombi or "little strokes," but many, probably a m jority, are based on temporary spasm of the arteries i volved. Many patients are seen who have a series transient strokes that may range in severity from slig numbness or weakness of the side of the face, or slig difficulty with speech, to hemiplegia and that may last a few minutes to several days, with complete recove They may recur repeatedly in the same day in identi fashion. These phenomena frequently portend a ma paralysis with all of its catastrophic effects. The striki clinical improvement that we have reported from the of papaverine in the prevention of these vasospastic e sodes has been supported by observations indicatin substantial increase in cerebral blood flow after the ministration of the drug.[5] Consequently, when premo tory symptoms become manifest, papaverine in la dosage does seem to constitute a rational and effecti preventive measure.

There is a divergence of opinion in the literature as the efficacy of blocking the stellate ganglion. The di culty in differentiating between clinical improvement sulting from therapy and that occurring spontaneou indicated the need for carefully controlled studies. It essential to bear in mind the natural course of this sy drome and the fact that many, if not most, of these p tients show striking improvement during the first we or 10 days. It has been argued that no logical basis exi for blockage of the stellate ganglion, since most observ tions on the circulation of the brain show that the cereb vessels are not under the control of the cervical symp thetic nerves. Scheinberg [6] and Harmel and associate actually found no alteration in cerebral hemodynami after blockage of the stellate ganglion, but it has not be established whether the patients in their study were co parable to those who receive such therapy for clinic purposes. Final evaluation of the indications and us fulness of this procedure must await more extensive e perience.

Anticoagulants have been tried in patients with cer bral thrombosis in an effort to prevent further extensio of preexisting thrombi or the formation of new clots. I

Read at the Graduate Symposium on Geriatric Medicine, the American Geriatrics Society, New York, Nov. 13, 1954.

[1] Wright, I. S., and McDevitt, E.: Cerebral Vascular Diseases: Their Significance, Diagnosis and Present Treatment, Including the Selective Use of Anticoagulant Substances, Ann. Int. Med. **41**: 682 (Oct.) 1954.

[2] Rusk, H. A., and others: Hemiplegia and Rehabilitation, Sharp & Dohme Seminar, p. 1, Jan.-Feb., 1952.

[3] Alvarez, W. C.: Cerebral Thrombosis: Best Treated Expectantly, editorial, Mod. Med. **21**: 65 (April 1) 1953.

[4] Russek, H. I., and Zohman, B. L.: Papaverine in Cerebral Angiospasm (Vascular Encephalopathy), J. A. M. A. **136**: 930 (April 3) 1948.

[5] Scheinberg, P.; Jayne, H. W.; Rich, M., and Belle, M. S.: The Effects of Intravenous Papaverine and Procaine on Cerebral Circulation and Metabolism, abstracted, J. Clin. Invest. **30**: 671 (June) 1951. McCall, M. L.; Finch, T. V., and Taylor, H. W.: The Cerebral Effects of Papaverine Hydrochloride in Toxemia of Pregnancy, Am. J. Obst. & Gynec. **61**: 393 (Feb.) 1951.

[6] Scheinberg, P.: Cerebral Blood Flow in Vascular Disease of the Brain, with Observations on the Effects of Stellate Ganglion Block, Am. J. Med. **8**: 139 (Feb.) 1950.

[7] Harmel, M. H., and others: The Effect of Bilateral Stellate Ganglion Block on the Cerebral Circulation in Normotensive and Hypertensive Patients, J. Clin. Invest. **28**: 415 (May) 1949.

cases of hemorrhage or certain blood dyscrasias, the danger of this form of therapy is obvious. It is also believed that the risk of secondary hemorrhage in a softened area of the brain is increased if the clotting mechanism is disturbed[8]; hence, no definite conclusions are warranted about the value of this form of treatment.

From these considerations it can be seen that no acceptable therapy for stroke is now available to hasten recovery from the acute phase of the attack or to reduce the extent of the cerebral lesion and its associated neurological defects. In earlier studies[9] concerned with the rehabilitation of hemiplegic patients, we observed that the administration of cortisone promoted a sense of well-being, improved motivation, stimulated psychomotor activity, and diminished pain. These desirable actions of the drug permitted early ambulation and shoulder manipulation, even in neglected cases in which there were painful contractures. In all of these patients cortisone was administered many weeks or months after the development of the acute cerebrovascular occlusion. The possibility that cortisone may also have value in the acute phase of the disease immediately after the onset of stroke was suggested, not only by these findings but also by other considerations of a theoretical nature. Many workers[10] have demonstrated that, after administration of cortisone, there is delay in fibrosis, diminished cellular reaction, scanty formation of ground substance, little capillary formation, and complete lack of fibrin and exudate. Inasmuch as local cerebral edema surrounding an area of infarction is commonly regarded as a contributory factor in the perpetuation of neurological signs, the retardation of the mesenchymal tissue response would appear to be a most important and immediate objective of therapy. If this retardation could be achieved, nerve cells that otherwise would eventually die of anoxia as a result of the tissue reaction in the zone surrounding the affected area might be spared, and the ultimate irreversible changes in the brain might be held in abeyance or reduced to a minimum. The probability of such an effect from cortisone in cerebral infarction is strengthened by observations of its influence on tissue response to incision of the brain[11] and on experimentally produced myocardial infarction in animals.[12]

In a preliminary report[13] we recorded the results obtained in 15 consecutive cases of apoplectic stroke that were treated by means of a short course of cortisone, initiated within 48 hours after the onset of symptoms. It was found that cortisone was without benefit in the 3 patients in the series who suffered a cerebral hemorrhage but that it exhibited striking effects in 9 of the 12 patients with hemiplegia due to cerebral thrombosis or embolism. Because of these encouraging results, this method of treatment has been carried out in all patients coming under our care in whom acute cerebral thrombosis or embolism was associated with severe neurological signs. We have treated 35 such patients by steroid therapy. This paper is concerned with the results obtained under this regimen.

CLINICAL MATERIAL AND METHODS

Of the 35 patients in this series, 30 were men and 5 were women. The ages ranged from 40 to 74 years, with a mean of 60.2 years. Hypertension was present in 24 of the 35 patients. A history of angina pectoris was obtained in eight and previous myocardial infarction in seven. The cause of the cerebrovascular occlusion was diagnosed as thrombosis in 27 cases and as embolism in 8. The latter occurred in three patients convalescing from acute myocardial infarction and in five patients with rheumatic heart disease and chronic auricular fibrillation. Twelve of the total group had previously suffered from bouts of congestive heart failure. Diabetes mellitus of mild to moderate severity was present in six patients. In all but three of the total group the signs and symptoms were severe. Eight patients were disoriented or semicomatose at the time treatment was instituted. Eighteen patients showed marked hemiparesis on the right, conjugate deviation of the eyes, and varying degrees of clouded consciousness; marked facial weakness, aphasia or dysarthria, and difficulty in swallowing were found in most of these 18 patients. Four patients exhibited complete flaccid paralysis of the left extremities. Eight patients showed hemiparesis on the left, but, in three of these, the symptoms were of a mild nature. The remaining subjects in the series had marked involvement of the face and upper extremity, but the leg either escaped involvement or was only mildly affected. In most instances 300 mg. of cortisone was administered orally in divided doses on each of the first two days, with progressive diminution to a maintenance dose of 50 mg. daily through the third week. In three patients the course of cortisone therapy was intentionally discontinued at the end of the first week, but in two of these patients it was resumed after several days. Cortisone was administered parenterally in patients who were comatose or who had difficulty in swallowing. In addition, when possible, each patient was given a low-salt diet, with 3 gm. of potassium chloride orally each day in divided doses. Serial observations were made of the electrocardiogram, hemogram, and urinalysis. Repeated daily determinations were made of the blood pressure and heart rate. Serum sodium and potassium levels were not followed. In all patients cortisone therapy was started within 48 hours after the onset of the cerebrovascular accident; in 22 of the 35 patients it was begun within 24 hours after the appearance of symptoms. In three patients (two with cerebral embolism and one with cerebral thrombosis) cortisone was administered after blockage of the stellate ganglion proved ineffective.

RESULTS

In 21 of the 35 patients in this series dramatic clinical improvement was noted within 24 hours after the commencement of cortisone therapy. There was not only a striking amelioration of paralytic signs and symptoms but also unquestionable benefit from changes in the mental, emotional, sensory, and psychomotor status. Conjugate deviation of the eyes, incoherent speech, dysarthria, and aphasia appeared to clear rapidly during cortisone therapy. The greatest effects were noted among those who were somnolent, stuporous, mentally depressed, or apathetic. In 19 patients so afflicted, these symptoms were replaced overnight by a keen alertness and sustained interest in personal progress. Accompanying these mental changes, there was noteworthy subsidence in the degree of paresis of affected extremities, as shown by significant increase in the range of motion and in the ability to perform various activities. Moreover, active rehabilitative measures were easily instituted after only one or two days of treatment as a consequence of the rapid recovery from acute mental disturbances, associated with improved motivation, psychomotor stimulation, and increased sense of well-being. The greatest clinical improvement in all cases occurred within the first 24 to 48 hours after cortisone therapy was started; thereafter, definite but more gradual return of function ensued. The most marked benefits from the drug were observed in the more severe cases of cerebral thrombosis and embolism; however, in four patients with complete flaccid paralysis of involved extremities, no improvement in motor power was noted in response to the drug, although unmistakable benefit in the psyche was apparent. Cortisone therapy was intentionally discontinued in three patients after approximately one week of therapy; in two of these paresis increased in the involved extremities after the drug had been withheld for two and three days respectively. The readministration of cortisone, however, was soon followed by improvement in the motor power of the affected limbs. No such rebound phenomenon was observed at the termination of therapy in any of the patients receiving cortisone continuously for the three week course. At the end of this period remarkable neurological recovery had occurred in 27 of the 35 patients in the total group. In these, residua consisted of mild to moderate weakness in the handgrip, mild foot-drop, lower facial paresis, and minor difficulties in speech and deglutition. No serious difficulties were encountered from the use of cortisone in this study.

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[8] Wright, L. T., and Rothman, M.: Deaths from Dicumarol, A. M. A. Arch. Surg. **62**: 23 (Jan.) 1951.

[9] Russek, H.I., and others: Cortisone as an Adjunct in the Rehabilitation of the Hemiplegic Patient, Am. J. M. Sc. **225**: 147 (Feb.) 1953.

[10] Connective Tissues: Transactions of the First Conference, April 24-25, 1950, New York, Regan, C., editor, New York, Josiah Macy, Jr., Foundation, 1951.

[11] Foley, J. M.; Chambers, R. A., and Adams, R. D.: Effect of Cortisone on Early Repair of Brain Wounds in Guinea Pigs, abstracted, J. Neuropath. & Exper. Neurol. **12**: 101 (Jan.) 1953.

[12] Johnson, A. S.; Scheinberg, S. R.; Gerisch, R. A., and Saltzstein, H. C.: Effect of Cortisone on the Size of Experimentally Produced Myocardial Infarcts, Circulation **7**: 224 (Feb.) 1953.

[13] Russek, H. I.; Zohman, B. L., and Russek, A. S.: Cortisone in the Immediate Therapy of Apoplectic Stroke, J. Am. Geriatrics Soc. **2**: 216 (April) 1954.

COMMENT

It is acknowledged that a rapid and nearly complete recovery may occur after a cerebrovascular accident, with nothing more than symptomatic treatment. Nevertheless, the frequency of prompt and striking improvement in neurological symptoms in our patients with cerebral thrombosis or embolism during cortisone therapy must be regarded as more than coincidence. Cortisone appeared to convert the discouraged, apathetic, or bewildered hemiplegic to a cooperative, hopeful, and even mildly euphoric patient overnight. Clouded consciousness, stupor, and disinterest in surroundings were often replaced within 24 hours by a degree of alertness and insight not encountered at any time in apoplectic patients treated expectantly. The clinical impression obtained was that cortisone accomplished in one day what ordinarily might take several weeks with conservative treatment. These beneficial changes in the psyche of individual patients in response to cortisone seem indisputable and leave little doubt as to the value of the drug in this disorder. Moreover, the marked subsidence in paralytic signs and symptoms that frequently accompanied the striking mental changes may also prove to be directly attributable to the action of cortisone. Two of the three patients in whom cortisone therapy was prematurely stopped showed increasing paresis, with reversal of effect when therapy was resumed.

With cortisone therapy rehabilitative measures can be instituted with little difficulty after only one or two days of treatment because of the patient's alertness of mind and euphoria. The early employment of retraining methods undoubtedly played a part in the remarkable neurological recovery observed in most of these cases, but since the major response was observed before the application of such measures, the effect of the cortisone on the apoplectic lesion in the brain itself should be considered It is of interest that cortisone appeared to exert its maximum influence in the more seriously ill patients with cerebral thrombosis or embolism. Patients with milde cases responded satisfactorily, but the most dramatic effects were noted in patients with marked hemiparesis aphasia, conjugate deviation of the eyes, and cloude consciousness. These findings support the impressio that the immediate effects of cortisone are more marke in patients with the more extensive lesions of the brai in which local edema plays a prominent part. Obviously any method capable of preventing or eliminating th interstitial edema that is an outstanding gross and microscopic characteristic of apoplectic lesions would preserve nerve cells and permit a greater degree of neurological recovery. The probability of such an effect fro cortisone is further suggested by observations of its a tion on experimentally produced myocardial infarcts animals.[12] Thus, in the treated animal there was a shar line of demarcation between the area of infarction an the adjacent muscle, whereas in the control there was broad, irregular zone of healing. Postmortem injectio studies furthermore demonstrated a greater developmen of collateral circulation under the influence of cortisone Similar observations on the incised brains of animals hav demonstrated an inhibitory effect of the drug on interstitial edema.[11] Regardless of the explanation, administration of the drug appears to counteract some of the immediate effects of stroke due to cerebral thrombosis o embolism. In a disease that is commonly viewed with a fatalistic philosophy and treated at best with good nursing care, cortisone should prove a most valuable addition to therapy and a useful adjunct for early rehabilitation

In the present series of cases no significant complications were observed from the administration of cortisone. In patients with diabetes mellitus the diabetes was easily controlled by meeting the increased demand for insulin. Clinical signs of sodium retention were not observed, and hypertension was not aggravated by the use of cortisone. Although well over 100 cases of cardiovascular or cerebrovascular disease have been treated to date with cortisone by the authors,[14] no thrombotic incident has occurred in any patient during the course of therapy or in the immediate post-treatment period. This experience in patients with obvious thrombotic tendencies and with advanced vascular disease does not confirm the alleged risk of thromboembolic complications from the use of this drug.[15]

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[14] Russek and others.[9] Russek, H. I.; Russek, A. S.; Doerner, A. A., and Zohman, B. L.: Cortisone in the Treatment of Shoulder-Hand Syndrome Following Acute Myocardial Infarction, A. M. A. Arch. Int. Med. 91: 487 (April) 1953; Russek, H. I.; Zohman, B. L., and Russek, A. S.: Risk of Thromboembolic Complications from Cortisone Therapy, Am. Heart J. 47: 653 (May) 1954.

SUMMARY AND CONCLUSIONS

Various attempts have been made to improve the cerebral circulation in patients with apoplectic stroke, in the hope of decreasing neurological residua. The uncertain responses with such methods have left no alternative to expectant therapy. Inasmuch as cortisone has been found of value in the rehabilitation of hemiplegic patients, through its action in enhancing motivation and promoting a sense of well-being, it was considered logical to make a trial of the drug for the acute cerebrovascular accident. Moreover, since local cerebral edema is believed to be a contributory factor in the perpetuation of neurological signs, and since cortisone has been shown to retard the mesenchymal tissue response to various forms of trauma, additional benefit from cortisone seemed possible in this respect. With these objectives in mind, 35 cases of apoplectic stroke due to cerebral thrombosis or embolism were treated with this drug within 48 hours after the onset of symptoms. Cortisone produced striking effects in 21 of the 35 patients under this regimen, and remarkable neurological recovery had occurred in 27 patients by the end of the third week of cortisone administration.

Cortisone is a valuable addition to the therapy of acute cerebral thrombosis or embolism. The drug appears to offer a dynamic approach to limiting the assault of a disease that, until now, has been viewed, at best, with expectancy, and, at worst, with defeatism. No significant untoward effects from cortisone were noted in this study.

176 Hart Blvd. (Dr. H. I. Russek).

[15] Cosgriff, S. W.: Thromboembolic Complications Associated with ACTH and Cortisone Therapy, J. A. M. A. **147**: 924 (Nov 3) 1951. Steinbrocker, O., and others: ACTH and Cortisone as Therapeutic Agents in Arthritis and Some Locomotor Disorders, Bull. New York Acad. Med. **27**: 560 (Sept) 1951.

TOXEMIA OF PREGNANCY AS AN ETIOLOGICAL FACTOR IN HYPERTENSIVE VASCULAR DISEASE

Phil C. Schreier, M.D., John Q. Adams, M.D., Henry B. Turner, M.D.
and
M. Jean Smith, M.D., Memphis, Tenn.

Although many reports have appeared describing follow-up findings in thousands of patients with previous toxemia of pregnancy, no clear-cut answer can be found to the question of whether toxemia of pregnancy is an etiological factor in the development of permanent hypertensive vascular disease. The variation in available data is illustrated by the fact that previous reports have placed the incidence of hypertension following toxemia from 0 to 78%. The average reported incidence following preeclampsia is 45%, and that following eclampsia is 22.5%, approximately one-half as much. This tremendous variation might be explained in part by the lack of uniformity of criteria for a diagnosis of toxemia and post-toxemic hypertension. The reported level of blood pressure constituting hypertension has varied from 130/70 to 170/100 mm. Hg. Today most investigators consider 140/90 mm. Hg as the dividing line between a normal blood pressure and hypertension. Master, Dublin, and Marks[1] have shown that the level of blood pressure considered to be normal rises with increasing age and that it is incorrect to say that a blood pressure of 140/90 mm. Hg constitutes hypertension for all age groups. Even though considerable confusion exists regarding post-toxemic hypertension, interpretation of the available data tends to fall into two general schools of thought. The evidence in favor of the theory that toxemia of pregnancy leads to permanent hypertension is vastly more abundant and overwhelming than the evidence in support of the theory that it does not lead to permanent vascular damage.

LITERATURE ON TOXEMIA, PREECLAMPSIA, AND ECLAMPSIA

Among the early reports suggesting that hypertension followed toxemia was that of Harris,[2] who in 1924 reported that of 55 women with preeclampsia 60% showed signs of chronic hypertensive renal disease one year later. Peckham[3] found that 22.1% of 77 women who had eclampsia one year previously had "chronic nephritis." This he thought represented sequelae to the previous toxemia. He recognized the fact that more damage occurred after severe preeclampsia than after mild preeclampsia. The diagnosis of chronic nephritis was made on the presence of hypertension and proteinuria. We now know that this probably was not chronic nephritis in the true sense but chronic vascular renal disease. There is general agreement that chronic glomerulonephritis is a rare complication of pregnancy. The work of Chesley on the problem of post-toxemic hypertension has been perhaps the most outstanding. His results are especially reliable because of his intense interest in this subject for many years and the thoroughness with which his studies were done. In 1941 he reported

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From the Division of Obstetrics and Gynecology, University of Tennessee College of Medicine and the City of Memphis Hospitals.

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[1] Master, A. M.; Dublin, L. I., and Marks, H. H.: The Normal Blood Pressure Range and Its Clinical Implications, J. A. M. A. **143**: 1464 (Aug. 26) 1950.

[2] Harris, J. W.: The After-Effects of Late Toxemias of Pregnancy, Bull. Johns Hopkins Hosp. **35**: 103, 1924.

[3] Peckham. C. H.: Chronic Nephritis Following Eclampsia, Bull. Johns Hopkins Hosp. **45**: 176, 1929.

that the gross incidence of hypertension following nonconvulsive toxemia was 53% and the recurrence rate of toxemia was 46%.[4] Of special interest are the repeated follow-up findings among patients with eclampsia treated over a period of 15 years at the Margaret Hague Hospital. In 1941 Chesley and Somers [5] reported that only 17.5% of these patients had permanent hypertension. Seven years later Chesley, Somers, and Vann [6] found the incidence of permanent hypertension in 245 patients with previous eclampsia to average 15%. The average rate of recurrence of toxemia in this series was 44.7%, with eclampsia recurring in only 2.3%.

Peters [7] has said that "toxemias of all kinds leave behind them marks, usually in the vascular system that cannot be eradicated." The idea that anoxia, developing as a result of prolonged vasospasm, leads to permanent, irreversible structural damage to the vessel wall has been accepted by many, including Eastman, Page, and Chesley. Glomerular lesions in acute toxemia have been observed and described as a thickening of the basement membrane. Page and Cox [8] examined the kidneys of eight patients dying with toxemia and seven patients with previous toxemia; he found the same glomerular damage in both groups. This constitutes evidence of structural damage that did not revert to normal. Govan, however, reported that such changes were also found in the kidneys of patients dying of nontoxemic disease during pregnancy.[9]

The following factors are recognized as influencing the development of permanent hypertension following toxemia: family history, height of blood pressure during the toxemia, state of gestation at which toxemia developed, parity, age at time of toxemia, age at time of follow-up examination, duration of toxemia, and the weight of the patient. Of these, we feel that the most important are the duration of the toxemia and the age at the time of the follow-up examination. It has been shown repeatedly that the incidence of permanent hypertension increases directly with the duration of the toxemia.[10] Page [11] believes that the duration is important and says that a moderate preeclampsia of three weeks' duration will produce more damage than a severe preeclampsia of one week's duration. It is generally agreed that after three weeks' duration the incidence of permanent hypertension rises rapidly and that the earlier in pregnancy toxemia develops the more likely the patient is to be left with permanent hypertension. This is probably because those developing toxemia early will be treated longer in order to obtain a viable fetus. This still points to duration as the significant factor. An increasing percentage of pateints will become hypertensive if followed for many years. Without consideration of the effect of age, erroneous conclusions could be drawn from long-range follow-up examinations showing small increases in permanent hypertension.

The chief advocate of the other side of this question has been Dieckmann. For 20 years he has contended that toxemia does not produce permanent hypertension and that, if hypertension, albuminuria, and edema persist for two weeks despite adequate treatment, the disease is not preeclampsia but essential hypertension.[12] Dieckmann delays the final diagnosis until the follow-up examination, and, if the patient is found to have hypertension or albuminuria, the diagnosis then becomes chronic vascular renal disease regardless of the clinical picture during the acute episode. He goes so far as to say that the convulsions in such a situation are possibly from hypertensive encephalopathy. In 1952, Dieckmann, Smitter, and Rynkiewicz [13] published a report reviewing the factors influencing recurrent toxemia and post-toxemic hypertension but did not prove the contention of the title, "Pre-Eclampsia-Eclampsia Does Not Cause Permanent Vascular Renal Disease." Some investigators have written reports supporting Dieckmann's theory. Theobald showed that there was no significant difference in deaths between parous and nulliparous women as a result of cardiovascular renal disease. Barnes and Browne [14] and Isenhour, Kuder, and Dill [15] found little difference in hypertension among parous and nulliparous patients. However, Chesley's rebuttal to this is especially interesting. He points out that the 1% higher incidence of hypertension in parous women from the pooled data of these two reports is of the right magnitude to take in the effect of toxemia.[10]

Some investigators have said that patients with hypertension at the time of follow-up examination would have been so regardless of the pregnancy or the toxemia. Others concede that toxemia may precipitate hypertension earlier than would be expected, even though the individual was destined to become hypertensive. The idea that toxemia is an acute form of an underlying hypertensive tendency has also been expressed. We would agree with Chesley that the use of terms such as "latent hypertension" or "destined for hypertension" is to be questioned. How can one say that the development of hypertension in any patient is inevitable? It is recognized that the problems of recurrent toxemia and permanent hypertension are closely related. Few patients with repeated episodes of toxemia escape the sequelae connected with permanent vascular damage. Dieckmann has expressed the opinion that a recurrence of toxemia is not toxemia at all but vascular renal disease.

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[4] Chesley, L. C.; Somers, W. H.; Gorenberg, H. R., and McGreary, J. A.: An Analysis of Some Factors Associated with Post-Toxemic Hypertension, Am. J. Obst. & Gynec. **41**: 751, 1941.

[5] Chesley, L. C., and Somers, W. H.: Eclampsia and Posteclamptic Hypertension: Follow-Up Study with Analysis of Factors Affecting Remote Prognosis, Surg., Gynec. & Obst. **72**: 872, 1941.

[6] Chesley, L. C.; Somers, W. H., and Vann, F. H.: A Further Follow-Up Study of Eclampsia, Am. J. Obst. & Gynec. **56**: 409, 1948.

[7] Peters, J. P.: The Nature of the Toxemias of Pregnancy, J. A. M. A. **110**: 329 (Jan. 29) 1938.

[8] Page, E. W., and Cox, A. J., Jr.: Renal Changes Following Toxemias of Late Pregnancy, West. J. Surg. **46**: 463, 1938.

[9] Govan, A. D. T.: Renal Changes in Eclampsia, J. Path. & Bact. **67**: 311, 1954.

[10] Chesley, L. C.: Toxemia of Pregnancy and Post-Toxemic Hypertension, Gynaecologia **139**: 259, 1954.

[11] Page, E. W.: The Hypertensive Disorders of Pregnancy, Springfield, Ill., Charles C Thomas, Publisher, 1953.

[12] Dieckmann, W. J., and Brown, I.: Do Eclampsia and Preeclampsia Cause Permanent Vascular Renal Pathology? Am. J. Obst. & Gynec. **37**: 762, 1939.

[13] Dieckmann, W. J.; Smitter, R. C., and Rynkiewicz, L.: Pre-Eclampsia-Eclampsia Does Not Cause Permanent Vascular Renal Disease, Am. J. Obst. & Gynec. **64**: 850, 1952.

[14] Barnes, J., and Browne, F. J.: Blood Pressure and the Incidence of Hypertension in Nulliparous and Parous Women in Relation to the Remote Prognosis of the Toxaemias of Pregnancy, J. Obst. & Gynaec. Brit. Emp. **52**: 1, 1945.

[15] Isenhour, C. E.; Kuder, K., and Dill, L. V.: The Effect of Parity on the Average Blood Pressure and on the Incidence of Hypertension, Am. J. M. Sc. **203**: 333, 1942.

Other investigators have said that repeat toxemia is a different and perhaps milder syndrome than the initial syndrome.[16] Young,[17] on the other hand, stated that a recurrence of toxemia is in no wise different than the original syndrome. It is difficult for us to see how two episodes with identical manifestations could be considered as having any essential differences.

The problem of recurrent toxemia was first recognized by Gibson in 1921; however, the term recurrent toxemia was not applied until three years later, when Kellogg[16] described the syndrome that he thought was due to a renal insufficiency. This line of reasoning led to the introduction of the term "low reserve kidney" by Stander and Peckham. This was an unfortunate term, as it implied an inadequacy that did not exist. The thinking of this era was further expressed by one of us (P. C. S.),[18] who reported on four patients illustrating the problem of recurrent toxemia. The problems of toxemia of pregnancy and recurrent toxemia with their relationship to permanent vascular renal disease are so paramount that all centers with considerable experience in toxemia should analyze their experience in an effort to provide an answer to these complex questions. Chesley has said that he does not believe an answer will be found in the follow-up studies. We might add, perhaps, that there is no answer; however, out of such studies will come information that can be used as a prognosis for both infant and mother, as well as information as to the advisability of future pregnancies. It is the purpose of this report to focus attention on these problems and to add our experiences from the City of Memphis Hospitals.

MATERIAL

In an effort to eliminate the possibility of including patients with preexisting hypertension or previous toxemia in the study, only primigravidas with normal blood pressure in early pregnancy and negative cardiac histories were selected. These women were followed in our prenatal clinics and subsequently developed some degree of toxemia in their first pregnancy. Follow-up through successive pregnancies for 5 years was carried out in one group, and, in another, the patients were observed for 10 years. The factor of advancing age, therefore, could be appraised. The mean age at the initial pregnancy was 18 years for each group. A random sample of 340 hospital charts was selected for study on the basis of proved toxemia in the first pregnancy and follow-up of at least five years or more. After additional study, 101 of this number were discarded for lack of complete information. The remaining 239, it is felt, represent cases of pure toxemia of pregnancy that occurred in the first gestation of otherwise normal females. Data included the occurrence of repeated bouts of toxemia, the incidence of elevated blood pressure without albuminuria or edema, and the occurrence of permanent hypertension following pregnancy. The number of pregnancies and the frequency of repeated toxemia were correlated with age and the finding of persistent hypertension. No attempt was made to correlate duration of toxemia with the development of residual hypertension. No racial distinction was attempted, but more than 95% of the total were Negroes.

The principal difficulty in considering recurrent toxemia of pregnancy as a factor in the etiology of essential hypertension is the necessity of establishing a base of comparison. A certain number of any group would develop permanent hypertensive vascular disease with or without toxemia of pregnancy. The contributions of Master, Dublin, and Marks[1] are the best data yet available as to hypertensive expectancy. In their studies of more than 7,000 women in industry, many of whom were nulliparas, it was established that an increasing percentage of women develop essential hypertension in the advancing decades of life. Blood pressure of 140 mm. Hg systolic and 90 mm. Hg diastolic or above was used by Master as the criterion for the diagnosis of hypertension, at ages 25 to 29 years. He found that 8.4% of his patients had persistently elevated blood pressure. The mean age of our patients at the time they were found to have residual hypertension was 26 years. In the absence of an ideal group, they will be compared, therefore, with Master's group of the same age.

FINDINGS

Five Year Group.—A total of 142 tabulations was made on patients followed for five years after the initial episode of toxemia. Of this number, 59 had mild preeclampsia in their first pregnancy, 63 had severe preeclampsia, and 20 had eclampsia. The fact that twenty of 142 patients had eclampsia showed the apparent result of random selection; such a high percentage of convulsive toxemia does not reflect the true incidence of this disease in our patients. Of the entire group, 35.2% had recurrent toxemia in subsequent pregnancies. Fourteen per cent had blood pressure elevations in excess of 140 mm. Hg systolic and 90 mm. Hg diastolic but had no edema or albuminuria. These were considered in a separate group because they did not fulfill the diagnostic criteria of toxemia yet it was felt that the temporary hypertensive episode might be of prognostic importance. A total of 50% of the group, therefore, had recurrent temporary hypertension. Fifty-three patients, or 38% of the group, had no recurrent toxemia or hypertension. Seven patients had no further pregnancies. Ten patients, or 7% of the total tabulated, were found to have a permanent elevation of blood pressure at the end of the five year period.

Table 1 shows the correlation between the severity of the initial episode of preeclampsia and the incidence of recurrent toxemia. Furthermore, permanent hypertension occurred in only 3.4% of those having mild preeclampsia, while those with an initial diagnosis of severe preeclampsia composed 11.1% of the group. When the initial diagnosis was eclampsia, this trend was reversed, and only 5% of the patients eventually developed essential hypertension. The implication is that duration of toxemia has a bearing on the development of permanent hypertension. This has been demonstrated by others but is not included in our data, for many of the patients herein reported on were followed in outlying clinics and the specific time of onset of symptoms could not be reliably obtained.

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[16] Kellogg, F. S.: Recurrent Toxemia of Pregnancy, Am. J. Obst. & Gynec. 8: 313, 1924.

[17] Young, James: The Prognosis and Treatment of Eclampsia and Albuminuria, with Special Reference to Risk of Recurrence in Subsequent Pregnancies, Brit. M. J. 1: 91, 1929.

[18] Schreier, P. C.: A Discussion of the Recurrent Toxemias of Pregnancy, Mississippi Doctor 11: 29, 1934.

Ten Year Group.—Ninety-seven tabulations were made on patients followed for 10 or more years. Of these, 67 had mild preeclampsia, 24 had severe preeclampsia, and 6 had eclampsia (table 2). Of the entire group, 30.9% had recurrent toxemia in later pregnancies and 11.3% had a temporary elevation of blood pressure. Persistent hypertension was found in 17.5%. This finding was no surprise, for the mean age in this group was higher than that of the five year group. The simple factor of advancing age would explain part of this increase over the 7% in the first group found with residual hypertension. Again, there was a definite correlation between severity of the initial attack and the development of permanent hypertensive disease. Whereas 10.4% of patients with mild preeclampsia developed hypertensive disease later in life, 41.6% of those with initial severe preeclampsia showed evidence of permanent hypertension at the end of 10 years. None of the 6 patients having eclampsia were later found to have essential hypertension.

TABLE 1.—*Correlation Between Severity of Preeclampsia, Duration of Toxemia, and Development of Permanent Hypertension in 142 Patients Followed for Five Years*

	Mild Preeclampsia		Severe Preeclampsia		Eclampsia		Total	
	No.	%	No.	%	No.	%	No.	%
Recurrent toxemia..	18	30.5	27	42.8	5	25	50	35.2
Recurrent hypertension..	10	16.9	9	14.3	2	10	21	14.8
Recurrent eclampsia... ..	..	....	..	....	1	5	1	0.7
Toxemia or hypertension not recurrent..........	25	42.3	18	28.6	10	50	53	38.0
No further pregnancies...	4	6.9	2	3.2	1	5	7	4.9
Permanent hypertension.	2	3.4	7	11.1	1	5	10	7.0
Total..	59		63		20		142	

For the two groups combined (table 3) it was found that 33.5% had recurrent toxemia and 13.4% a temporary recurrent hypertension without edema or albuminuria. Twenty-seven patients were found to have permanent hypertension. This represents 11.3% of all cases studied and may be compared to the findings of Master of 8.4% of women between the ages of 25 through 29 years with hypertension. This difference, therefore, represents an increase in incidence of hypertensive disease in our patients over that expected and would be greater if we were able to eliminate those in the control group who had previous toxemia of pregnancy.

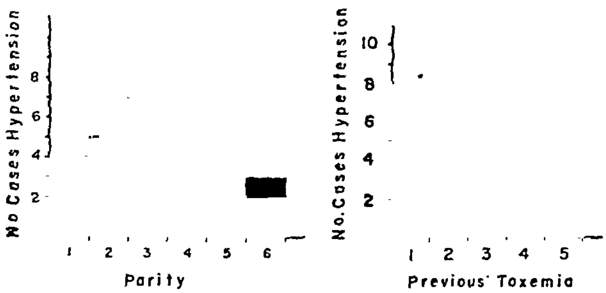
TABLE 2.—*Correlation Between Severity of Preeclampsia, Duration of Toxemia, and Development of Permanent Hypertension in Ninety-Seven Patients Followed for Ten Years*

	Mild Preeclampsia		Severe Preeclampsia		Eclampsia		Total	
	No.	%	No.	%	No.	%	No.	%
Recurrent toxemia.......	20	29.9	9	37.5	1	16.6	30	30.9
Recurrent hypertension..	11	16.4	..	....	..	....	11	11.3
Recurrent eclampsia.....	..	....	..	....	..	....	..	....
Toxemia or hypertension not recurrent..........	26	38.8	5	20.8	4	66.6	35	36.1
No further pregnancies..	3	4.4	..	....	1	16.6	4	4.1
Permanent hypertension	7	10.4	10	41.6	..	....	17	17.5
Total................	67		24		6		97	

Patients Developing Permanent Hypertensive Disease.—A more detailed study of the 27 patients who developed essential hypertension after having had toxemia is revealing. The median age was 26 years at the time permanent hypertension became evident. It is entirely possible that some of these patients developed sustained hypertension prior to the time they were seen in our clinic during their subsequent pregnancies, but, because we have no proof other than the information given in the charts, this is the date and the age recorded. In other words, any error would be in the direction of their having developed hypertension at an earlier age than was noted. It has been our clinical observation that patients who develop permanent hypertension do so most often after several episodes of toxemia. In the figure it can be seen that hypertension occurred more frequently after the patient was exposed to three or more pregnancies and two or more episodes of toxemia. Of the 27 patients, 9 had an initial episode of mild preeclampsia, 17 had severe preeclampsia, and 1 had eclampsia. This means that 6.9% of the total number with mild preeclampsia developed hypertension as compared with 19.5% of those with severe preeclampsia and 5.0% of those with eclampsia. It would appear, therefore, that hypertension is three times as likely to follow severe preeclampsia than it is the milder form of the disease. By contrast, eclampsia very infrequently results in sustained elevations of blood pressure.

TABLE 3.—*Comparison of Findings in Five and Ten Year Group*

	5 Yr. Group		10 Yr. Group		Total	
	No.	%	No.	%	No.	%
Recurrent toxemia..........	50	35.2	30	30.9	80	33.5
Recurrent hypertension......	21	14.8	11	11.3	32	13.4
Recurrent eclampsia.........	1	0.7	..	....	1	0.4
Toxemia or hypertension not recurrent..............	53	38.0	35	36.1	88	36.8
No further pregnancies......	7	4.9	4	4.1	11	4.6
Permanent hypertension....	10	7.0	17	17.5	27	11.3
Total.....................	142		97		239	



Relationship of hypertension to occurrences of pregnancy and toxemia.

SUMMARY AND CONCLUSIONS

A group of 239 patients with "pure" toxemia of pregnancy, developed during their first gestation, has been followed for periods of from 5 to 10 years. All but 11 had subsequent pregnancies. A high percentage suffered recurrent toxemia, and 27, or 11.3% of the total, were found to have permanent hypertensive disease. The expected incidence of hypertension for young women of this age is only 8.4% according to Master and his group. This figure is, in all likelihood, higher than the true incidence of hypertensive disease in women of this age. It must be appreciated that many of the observations of Master and co-workers were made at a time when these women were applying for jobs, a time when slight elevations of blood pressure are common. It is concluded, therefore, that toxemia of pregnancy results in an increased incidence of hypertensive disease and that the more severe the initial illness, excluding eclampsia, the more likely there is to be eventual permanent vascular damage. Repeated pregnancies and recurrent episodes of toxemia may have some relationship to the later occurrence of hypertensive disease, in that most women developing permanent elevation of blood pressure did so after three pregnancies and at least two bouts of toxemia.

894 Madison Ave. (Dr. Schreier).

ACCIDENT PREVENTION IN CHILDHOOD—THE KEROSENE HAZARD

Hugh A. Carithers, M.D., Jacksonville, Fla.

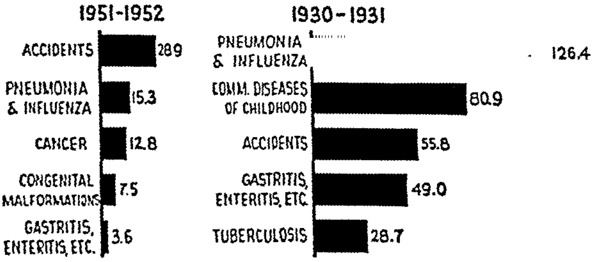
Accidents have become the leading cause of death among children over one year of age.[1] The prominence of accident mortality is due in part to the widespread use of chemotherapeutic agents and immunization procedures, which have helped control communicable diseases and many other acute infections in childhood. Pneumonia, diarrhea, and enteritis—at one time the commonest causes of death among young children—have been gratifyingly controlled. In fact, pneumonia, diarrhea, measles, diphtheria, whooping cough, scarlet fever, meningitis, and poliomyelitis, all combined, do not kill as many American children as do accidents.[2] One-third of all deaths in children at the present time result from accidents, while in 1900 accidents caused only one-twentieth of the deaths occurring in childhood.[3]

There has been, in recent years, some reduction in deaths from accidents among children, but to a much less extent than from diseases (see figure). Since 1930 deaths from communicable diseases have been reduced 97%, from gastroenteritis 93%, from appendicitis 91%, from tuberculosis 89%, and from pneumonia and influenza 88%, but from accidents only 48%. This reduction in accidents does not necessarily mean, however, that children are being injured less frequently. Today physicians are saving more who have been burned, poisoned, crushed, or mangled. Over one-half of all fatal accidents in childhood occur among children under 5 years of age. Dietrich[3] emphasized that the greatest efforts at accident prevention should be made in this age group, not only because these children have more accidents, but because education for safety is more fruitful when directed toward young children. Accidents in the 1 to 4 year age group have risen in prominence as a cause of death. In 1930-1931 pneumonia, influenza, and the common communicable diseases of childhood ranked above accidents with the gastrointestinal diseases not far behind. In 1951-1952 accidents were in first place, almost doubling in number the deaths from pneumonia and influenza, the next ranking group. This, however, is not the whole picture. It has been estimated by authorities[4] on the accident problem that for every fatal accident among children there are at least 100 nonfatal accidents, 4 of which result in some permanent disability.

The table shows the distribution of the principal types of accidents among children aged 1 to 4 years. Although motor vehicles, burns, drowning, and falls all precede poisonings as causes of death, this cause nevertheless gives rise to an extremely important aspect of the problem and illustrates its magnitude. Poisonings are most likely to occur in children of ages 1 through 2 (see table). This is the age of inquisitiveness when some children will eat or drink almost anything.

KEROSENE POISONING

One of the commonest, though not most fatal, types of poisoning among young children is caused by the consumption of petroleum oils, principally kerosene. Bain[5] in her study of accidental poisonings in children under 5 years of age in the United States found that petroleum products accounted for 25% of accidental poisonings in this age group. The Florida Children's Commission in cooperation with the Florida chapter of the American Academy of Pediatrics and the Florida Pediatric Society recently sent a questionnaire to 156 hospitals in Florida in an effort to determine the incidence of poisonings within the state caused by ingestion of volatile oils. Of 90 hospitals returning the questionnaire, 79 accepted children who might be poisoned. In 1953, 229 children, all under 6 years of age, were admitted to 45 hospitals for treatment because of poisoning by volatile oils. Nearly all of these children were



Leading causes of death in children aged 1 to 4 years. Death rates per 100,000. Cancer includes leukemia and Hodgkin's disease.

Read before the Eighth Clinical Meeting of the American Medical Association, Miami, Fla., Dec. 1, 1954.

The statistics in the figure and table are based on experiences of the Metropolitan Life Insurance Company, Industrial Department.

1. Armstrong, D. B., and Cole, W. G.: Can Child Accidents Be Prevented in Your Community? Am. J. Pub. Health **39**: 585-592 (May, pt. 1) 1949.

2. Wheatley, G. M.: Accident Prevention and the General Practitioner. Postgrad. Med. **10**: 442-445 (Nov.) 1951.

3. Dietrich, H. F.: Prevention of Childhood Accidents: What Are We Waiting For? J. A. M. A. **156**: 929-931 (Nov. 6) 1954.

4. Footnotes 1 and 2.

5. Bain, K.: Death Due to Accidental Poisoning in Young Children. J. Pediat. **44**: 616-623 (June) 1954.

poisoned by drinking kerosene. In addition, 78 children were treated as outpatients in 18 hospitals, and it was estimated by 24 hospitals that 288 others probably were treated. Thus a total of over 500 Florida children were treated in that one year for volatile oil poisoning, caused in nearly all cases by ingestion of kerosene. There was only one death among this group. An examination of data from the bureau of vital statistics of the Florida State Board of Health, however, showed that four other children met death in the state in 1953 from drinking petroleum products. They were not treated in the reporting hospitals. These fatalities indicate, in all probability, a much larger incidence of this type of poisoning than was discovered as a result of the questionnaire.

A detailed study was made of all cases of poisoning from petroleum oil products recorded at one of the reporting hospitals, the Duval Medical Center, Jacksonville. During 1953, 76 patients were treated on the charity children's service, one of whom died. The mean hospital stay of these children was 4.53 days. The per diem cost of patient care in this hospital in 1953 was $12.36. If, on the basis of this per diem cost and this average hospital stay, one computes the cost of hospitalizing the known 229 patients treated in Florida hospitals in 1953, he finds that hospitalization cost approximately $12,800. The cost in terms of psychological trauma to the young child and his parents, of course, cannot be measured.

Percentage Distribution, by Principal Types, of Deaths from Accidents Among Children One to Four Years of Age, 1951-1952

	Age, Yr.				
Type of Accident	1-4	1	2	3	4
Accidents—total no. of deaths	753	203	189	188	173
Death rate per 100,000	28.9	....*	.. .*	....*	....*
	% of Deaths				
Motor vehicle—total	37.2	26.6	31.7	45.2	46.8
Run over or hit by motor vehicle	26.8	17.7	22.2	31.4	37.6
Burns and conflagrations—total	19.9	24.6	21.2	18.6	14.4
Conflagrations	10.7	11.8	13.2	10.1	7.5
Burns (excluding conflagrations)	9.2	12.8	8.0	8.5	6.9
Liquid, steam, hot substances, etc.	4.9	8.9	6.3	2.7	1.2
Drowning	15.4	12.3	17.5	13.3	19.1
Falls	6.0	5.4	7.4	6.4	4.6
Poisoning by liquids or solids	5.2	7.4	9.5	1.6	1.7
Choking by objects or food	4.4	9.9	3.2	2.7	1.2
Absorption of poisonous gas	1.3	1.5	2.1	0.5	1.2
Firearms	0.8	0.5	....	1.6	1.2
All other and unspecified	9.8	11.8	7.4	10.1	9.8

* Not available.

Kerosene ingestion is not a type of poisoning confined to the South, although it is probably commoner in this area than in other sections of the country. In June, 1953, the committee on accident prevention of the American Academy of Pediatrics reported a survey of 507 cases of accidental poisoning that occurred throughout the United States. In this series kerosene was the second commonest toxic agent, comprising 16% of the total.[6] A review of 375 cases of poisoning recorded in six Chicago hospitals during a recent nine month period, made by the poisoning control committee of the Illinois chapter of the American Academy of Pediatrics, disclosed that in 46 cases, or 12%, the cause of the poisoning was the ingestion of petroleum distillates, principally kerosene.[7]

In the Jacksonville area kerosene is widely used fo heating homes as well as for cooking. Consequently, decided rise in cases of poisoning during the winte months would be expected, but for many years ther have been numerous cases in the wards during the summer. Throughout 1953, for example, the distribution o kerosene-poisoning cases at the Duval Medical Cente was fairly equal, as shown in the following tabulation:

January	5	July	6
February	4	August	7
March	5	September	2
April	7	October	6
May	10	November	12
June	5	December	8

Although there may be more kerosene in the child's environment in the winter, it is during the summer that h will be more likely to drink it because of thirst. This observation emphasizes an important principle in the prevention among young children of poisoning from al toxic liquids: active youngsters should be given fluid between meals, especially in hot weather, so that thirs will not be the stimulus to the consumption of liqui poison.

It is not the purpose of this paper to present a complete discussion of kerosene poisoning. Certain controversial features of the disease, however, are reviewe here because they may have a bearing on surviva Deaths from kerosene poisoning may be due to tw causes: (1) aspiration with pneumonitis, subsequen pulmonary edema, and secondary infection of the lung and (2) toxic effects on one or more organs or system of the body, in particular the liver, stomach, and intestinal tract, and especially the brain. The lungs ar almost invariably involved in severe cases, and it i now believed that aspiration is far more important tha is absorption in causing damage to the lungs. In experimental animals pulmonary damage can be produce by the injection of kerosene intravenously. Some experimenters believe it also can be produced by injectio of the oil into the gastrointestinal tract when the possibility of aspiration is removed.[8] Practically speaking blood levels in man probably never would reach those produced in experimental animals when kerosene is injected intravenously. If there is pulmonary irritation from absorption alone, it is probably not, great. Children who have consumed more than several ounces of kerosene quickly show signs of toxicity with drowsiness and later coma. Kerosene contains hydrocarbons commonly used in some anesthetics, but varies considerably in coma-producing ability because of variability in refining processes.

TREATMENT

The immediate problem facing all physicians treating children who have consumed kerosene is whether or not to aspirate the stomach. The condition of the child, and to a less extent the history, will serve as a practical guide in each individual case. If one can be sure only a small amount was swallowed, if vomiting has occurred, and if there are no signs of toxicity with drowsiness, the child is probably best left alone. On the other hand, if toxic signs, especially with dizziness, drowsiness, or coma, are present, or if someone actually saw him drink a considerable quantity, careful lavage of the stomach, with the head and chest lowered, is indicated. Pinching off of the tube, quick withdrawal, and, if possible, avoidance of vomiting during lavage are important points in technique.

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[6] The Year Book of Pediatrics (1954-1955 Year Book Series), edited by Gellis, S. S., Chicago, the Year Book Publishers, Inc., 1954, p. 397.

[7] Poisoning Control Committee, Illinois Chapter of American Academy of Pediatrics: Personal communication to the author.

[8] Bologna, N. A., and Woody, N. C.: Kerosene Poisoning, New Orleans M. & S. J. **101**: 256-260 (Dec.) 1948.

ACCIDENT PREVENTION

This brief report on poisoning from petroleum distillates in one state serves not only to illustrate the magnitude of the problem of poisoning among children but to stress particularly the importance of accidents, of all types, as a cause of morbidity and mortality among the young. No attempt has been made to discuss many important facets of the accident problem, such as accident proneness, for example. The fact that 20% of the accident victims, in some groups studied, sustained over 50% of the accidents is important to physicians.[9] Accident repeaters should have a physical appraisal with special emphasis on vision, hearing, orthopedic status, and neurological integrity. Detailed psychological investigation may be necessary for those having no physical basis for repeated accidents.

All physicians who give medical care to children have an opportunity, indeed a responsibility, to promote accident prevention among them. General practitioners, who provide most of the medical care children receive, have especially good opportunities to promote safety. Becoming safety-minded and teaching safety to parents and children should entail little, if any, additional burden to the busy physician. Some specific suggestions of proved value in accident prevention that doctors can make a part of their routine practice are given below.[10]

1. Education of parents in accident prevention should begin before the child learns to walk. Mention the common home accidents at well-child check-ups, whether in private office or clinic. Distribute pamphlets on accident prevention; they are available for the asking from several leading insurance companies and the National Safety Council. When such literature is left on waiting room tables, it does little good, but when given to a parent with firm instructions, "Read this," it can be of value. 2. On calls in the homes of children, observe unsafe conditions and suggest corrective measures. 3. When treating a patient for any accidental injury, inquire into the cause of the accident and tactfully point out how a recurrence can be prevented in the future. There is no better time than while treating an accidentally injured child to make the parents and the child himself aware that safety measures are of value. 4. In prescribing drugs, stress the dangers of injudicious use and careless storage. This is also a good time to inquire about the handling of harmful cleaning agents, insecticides, and fuel in the home. 5. When a child has repeated accidents, make a complete appraisal of the patient and his environment in an attempt to find the cause. Public health nurses may be of value in such a study. 6. As a guardian of public health and well-being, be a leader in community projects directed toward safety and accident prevention.

2000 Park St. (4).

[9] Gleason, M. N.: The Accident-Prone Patient, New York J. Med. 48:2168-2170 (Oct. 1) 1948.

[10] Carithers, H. A.: Accidents Among Florida Children Leading Cause of Death, J. Florida M. A. 39:97-101 (Aug.) 1952.

CLINICAL NOTES

NEW METHOD FOR LOCAL ANESTHESIA IN PERORAL ENDOSCOPY

PRELIMINARY REPORT

Hubert J. Adler, M.D., Phoenix, Ariz.

Current methods of local anesthesia for peroral endoscopy are unsatisfactory because of (1) the toxic results of the effective surface anesthetics, (2) the discomfort—to put it mildly—to the patient caused by peroral endoscopies under local anesthesia, and (3) the lack of relaxation of the structures underlying the mucosa of the pharynx and larynx. A surface anesthetic does not relax the deeper structures such as the base of the tongue and the cricopharyngeus muscle (the "pinchcock of the esophagus"). The upper front teeth and their gums remain sensitive to the unavoidable pressure of the endoscope. The patient with long upper teeth and/or a short, muscular neck is a dreaded prospect for peroral endoscopies.

I have devised a method whereby the conventional surface anesthetics can be avoided almost completely. The usual preoperative medication (barbiturates, narcotics, and atropine) is given. The area to be described below is anesthetized by injecting a procaine-hyaluronidase mixture (150 turbidity-reducing units to 30 cc. of 1% procaine) or a 2% lidocaine (Xylocaine) hydrochloride solution and by instilling a 5% hexylcaine (Cyclaine) hydrochloride—2% tripelennamine (Pyribenzamine) mixture (ratio of 3:1) into the tracheobronchial tree.

The superior laryngeal nerve is injected first. If one prefers the external approach, the space between the cranial border of the thyroid cartilage and the hyoid bone is palpated. A 1½ in. 23 gauge needle is inserted perpendicularly to the skin 0.5 cm. anteriorly to the superior cornu of the thyroid cartilage until a resistance (the thyrohyoid membrane) can be felt (see table, injection 1). Then the greater palatine canal is injected. The oral opening of this canal lies about 1 cm. medially to the second molar and 1 cm. anteriorly to the border between the hard and soft palate. It suffices to enter the greater palatine canal for a depth of 1.5 cm. This reaches the anterior, middle, and posterior palatine nerves, resulting in anesthesia of the hard and soft palate, uvula, and anterior pillars (see table, injection 2a). An alternate method is to inject the mucosa over-

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From the Veterans Administration Hospital.

lying the oral opening of the greater palatinal canal without entering the canal proper (injection 2b). The ensuing anesthesia covers a smaller area than the one produced by injection 2a. Injection 2b should be supplemented with an injection into the incisive fossae above the upper incisor teeth (injection 3). This mitigates the pressure of the endoscope on the upper front teeth.

The glossopharyngeal nerve is injected by piercing the anterior palatinal pillars 1 cm. lateral to their free border and carrying the tip of the needle to a depth of about 1.5 cm., where a resistance can be felt. This usually relaxes the base of the tongue (injection 4). Should the base of the tongue remain sensitive, both lingual tonsils ought to be injected (injection 5). The base of the tongue is then depressed downward and forward on one side. By increasing the pressure slowly the pharyngoepiglottic ligament can be brought into view in most cases. This structure connects the lateral wall of the hypopharynx with the lateral border of the epiglottis. The superior laryngeal nerve runs about 1 cm. below the free border of this ligament. It is ballooned out by injecting 1 cc. into its pharyngeal root (injection 6). Relaxation of the cricopharyngeal muscle can be achieved by injecting the posterior wall of the hypopharynx just behind the epiglottis. This helps greatly in esophagoscopies (injection 7).

Pharyngolaryngeal Block

Injection No.	Nerve Injected	Site of Injection	Area of Anesthesia	Type of Anesthesia	Dosage, Cc.	Type of Needle	Remarks
1	Superior laryngeal	Hyothyroid ligament	Epiglottis and larynx	Block	3	1 in., 23 gauge	Alternate or supplement to injection 6
2a	Anterior, middle, and posterior palatine	Greater palatine canal	Hard and soft palate, uvula, and anterior pillars	Block	½	Curved tonsillar	Alternate to injection 2b
2b	Middle and posterior palatine	Lesser palatine foramen	Soft palate and anterior pillars	Block	½	Curved tonsillar	Alternate to injection 2a
3	....	Incisive fossa	Upper incisor teeth	Infiltration	0.2	½ in., 26 gauge	Not needed if injection 2a is given
4	Glossopharyngeal	Hilar area of palatinal tonsil	Anterior pillars, tonsil, posterior pillars, and base of tongue	Block	2	Straight tonsillar or 2½ in., 23 gauge	....
5	Terminals of glossopharyngeus	Lingual tonsil	Base of tongue and lingual aspect of epiglottis	Infiltration	2	Curved tonsillar	Supplement to injection 4
6	Superior laryngeal	Pharyngoepiglottic ligament	Epiglottis and larynx	Block	1	Curved tonsillar	Alternate or supplement to injection 1
7	....	Posterior wall of hypopharynx	Hypopharynx and cricopharyngeal muscle	Infiltration	1	Curved tonsillar	For esophagoscopy

It is not necessary to wait between injections. In order to save time, the instillation of the above-described hexylcaine-tripelennamine mixture can be given after injection 1. A dose of 0.25 cc. is administered through the glottis. Another dose should be instilled after all the injections. The entire procedure takes about 12 minutes. *I have named this method pharyngolaryngeal block* (p-l block for short).

SUMMARY

Pharyngolaryngeal block, an anesthetic method for peroral endoscopies, gives a safe and complete (deep) anesthesia.

Seventh Street and Indian School Road.

CAROTID EXPLORATION FOR HEMIPLEGIA FOLLOWING MITRAL VALVE SURGERY

David P. Boyd, M.D., Boston

The incidence of cerebral embolization during th performance of mitral valve surgery has been estimate at 5%.[1] Bailey [2] and his associates have found that the can greatly reduce this incidence by intermittent caroti occlusion during the surgical procedure. It may be tha in the majority of instances cerebral embolization occur in the brain. It had been our assumption that this was s and that nothing could be done about the hemiplegi that occasionally occurs during or shortly after this typ of operation. That this assumption on our part was a least occasionally incorrect is borne out by the followin case report.

REPORT OF A CASE

A woman, aged 39, knew she had rheumatic fever for som years. She never had cardiac decompensation nor was there a history suggesting embolism. Digitalis therapy was used f several years for auricular fibrillation. After careful medic study she was considered to have grade 2 to 3 mitral stenos without major involvement of other valves and without sig nificant mitral insufficiency. Mitral commissurotomy was recom mended. At the time of operation no complications were en countered. Entry into the auricular appendage and into th auricle was carried out without difficulty, and a tight mitra stenosis with calcification was found. There was minimal re gurgitation. No clots were palpable either in the appendage o in the auricle itself. Both anterior and posterior commissura were readily fractured with the finger and an excellent mitra opening was obtained.

The patient was operated on in midafternoon, and in the earl postoperative period, during which time special duty nurses were present, nothing alarming was noted. In the early morning on surgical rounds it was noted that the patient did not respond and that hemiplegia on the right was present. It did not occur to the examiners at that time to palpate her carotid arteries.

From the Department of Surgery, the Lahey Clinic.

1. Bailey, C. P., and others: Commissurotomy for Mitral Stenosis: Technique for Prevention of Cerebral Complications, J. A. M. A. **149**:1085-1091 (July 19) 1952.

2. Bailey, C. P.; Bolton, H. E., and Redondo-Ramirez, H. P.: Surgery of the Mitral Valve, S. Clin. North America **32**: 1807-1848 (Dec.) 195

Consultations with members of the departments of anesthesia and neurosurgery, however, with the idea of performing stellate ganglion block, brought out the fact that the left carotid was not pulsating. The patient was taken to the operating room at once, and with the patient under local anesthesia the left common carotid artery was exposed. Just below the bifurcation the artery was flaccid and soft. A Blalock clamp was applied at this level. An inch or two lower down the artery was fuller and firmer, suggesting an intraluminal clot. A catheter was passed around the proximal carotid artery and a longitudinal incision made in this region. A fresh blood clot immediately protruded and was removed; however, it was not until several additional pieces of clot had been aspirated from the lower common carotid down almost to the aorta that normal hemorrhage from the artery commenced. Back bleeding was profuse from the start. The incision in the vessel was closed with three interrupted silk sutures and the wound closed in layers in the usual manner. A good pulse was felt from this point on in the left superficial temporal artery. Anticoagulant therapy was instituted at once. The patient's cerebral status did not improve, and she died 24 hours after the second operation. Promptly after the second procedure, however, she performed voluntary movements of the right upper and lower extremities and at times seemed able to phonate and react to various stimuli.

COMMENT

It is probable that this carotid embolization or thrombosis occurred during the operation on the mitral valve or very shortly afterward. It is not surprising that after almost 24 hours of total interruption of one side, recovery did not take place. Despite the unfortunate outcome in this case, certain useful principles emerge and should be emphasized. Thus it seems reasonable to recommend that the anesthetist observe the common carotid pulsations frequently throughout the operation for mitral commissurotomy. The fact that thrombosis is not found in the appendage or in the auricle apparently is no guarantee against the development of postoperative thrombosis. In addition, the following specific recommendation is made, namely, that in cases of mitral commissurotomy a type of anesthesia be utilized that will permit the patient to awaken before he leaves the operating room. If hemiplegia is determined to be present, then carotid pulsations should be noted on the appropriate side. If there is the slightest question concerning the presence or absence of this pulsation, the artery should be explored. It may well be that occlusion of the internal carotid artery may occur in some cases at the bifurcation of the common carotid, and, even if pulsations are present in the common carotid and in the superficial temporal arteries, exploration of the carotid arteries should be considered.

SUMMARY AND CONCLUSIONS

Postoperative hemiplegia following operations on the mitral valve may be due to obstruction of the common carotid artery. This complication may also be caused by obstruction of the internal carotid artery at the bifurcation of the common carotid artery. The anesthetist should continually observe pulsations in the carotid arteries during the performance of the surgical procedure. In every case of mitral valvulotomy in which the complication of hemiplegia is demonstrated postoperatively, the carotid artery should be explored. All nurses, residents, and others concerned in the postoperative care of these patients should be thoroughly briefed relative to prompt recognition of this complication.

605 Commonwealth Ave. (15).

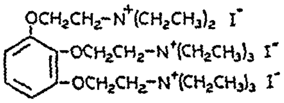
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

R. T. Stormont, M.D., *Secretary.*

Gallamine Triethiodide. — $C_{30}H_{60}I_3N_3O_3$. — M.W. 891.56. — [v-Phenenyltris(oxyethylene)]tris[triethylammonium iodide].—Tri(diethylaminoethoxy)benzene triethyliodide.—The structural formula of gallamine triethiodide may be represented as follows:



Actions and Uses.—Gallamine triethiodide, a synthetic substituted quaternary amine compound similar in action to curare, is useful to relax skeletal muscle for the same purposes and with the same precautions as other curare-like agents. (See New and Nonofficial Remedies 1955, under the general statement on curare.) Unlike curare and its derivatives, gallamine triethiodide exhibits little action on autonomic ganglions. It is useful with general anesthesia to provide more complete muscular relaxation during surgical, manipulative, endoscopic, and intubation procedures. It is also used to prevent accidents during convulsive shock therapy and to reduce muscle spasm during nonoperative orthopedic procedures. Further observations are needed to confirm its usefulness in obstetrics and for the management of convulsions and chronic spastic states secondary to disease.

Like all potent curare-like drugs, gallamine triethiodide should be used only by those thoroughly familiar with such agents and only when facilities for intubation, artificial respiration, oxygen therapy, and administration of antidotes are immediately available.

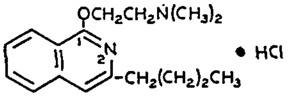
Gallamine triethiodide may produce an allergic reaction in patients sensitive to iodine and care should be taken to avoid severe reactions of this type. The drug is absolutely contraindicated in patients with myasthenia gravis.

Dosage.—Gallamine triethiodide is administered by intravenous injection as an aqueous solution. The dosage should be individualized by careful observation of the patient. The theoretical initial dose is about 1 mg. per kilogram of body weight. For prolonged procedures, additional doses of 0.5 to 1 mg. per kilogram may be injected at intervals of 40 to 50 minutes. Like curare, its action is cumulative.

The drug is readily miscible with solutions of thiopental sodium. In conjunction with ether inhalation anesthesia, smaller doses are required than for other general anesthetics. The same antagonists that are effective against tubocurarine will interrupt the action of gallamine. Neostigmine methylsulfate, 0.5 mg. to 1.5 mg., is a useful antidote and atropine sulfate may be administered simultaneously to counteract the postganglionic effect of neostigmine. A larger dose of the antidote is needed when gallamine is used in conjunction with ether because the latter impedes removal of the drug. Antidotes should be used with caution in asthmatic patients sensitive to such drugs. Such adverse antidotal effect is also counteracted with atropine.

Lederle Laboratories Division, American Cyanamid Company, cooperated by furnishing scientific data to aid in the evaluation of gallamine triethiodide.

Dimethisoquin Hydrochloride. — $C_{17}H_{24}N_2O.HCl$. —M.W. 308.86.—3-Butyl-1-(2-dimethylaminoethoxy) isoquinoline hydrochloride.—The structural formula of dimethisoquin hydrochloride may be represented as follows:



Actions and Uses.—Dimethisoquin hydrochloride, an active surface anesthetic, differs chemically from local anesthetics of the benzoate ester type, such as procaine, and is somewhat more active. Its toxicity is less than that of dibucaine but greater than that of cocaine or procaine. Its index of sensitization is considered to be somewhat less than that of procaine derivatives.

Dimethisoquin hydrochloride is useful topically for the relief of itching, irritation, burning, or pain in a wide variety of dermatoses, including nonspecific pruritus and mild sunburn. Evidence indicates that its effectiveness against pruritus is only about 20% greater than that of the vehicle in which it is applied. It also may reduce the pain of sutured surgical wounds. Because of its apparent lack of systemic toxicity and low index of sensitization when applied to the skin, the drug is considered relatively safe for unsupervised use as a topical remedy for symptomatic relief of simple irritations that may accompany undiagnosed minor skin conditions. When these symptoms persist, the underlying cause should be determined by consultation with a physician. Relief of pruritus also may aid in the treatment of the underlying cause with more specific forms of therapy.

Although dimethisoquin hydrochloride has not been associated with systemic toxicity or sensitivity when applied topically to mucous membranes, its use should be restricted to the skin until there has been longer experience regarding its effects on other tissues. For the same reason it should not be applied to extensive areas of the skin. Contact with the eyes should be avoided to prevent stinging.

Dosage.—Dimethisoquin hydrochloride is applied topically to the skin, either as a 0.5% lotion for moist lesions, or as a 0.5% ointment for dry lesions. Either lotion or ointment is applied as a thin film over the affected area. One application of either form usually provides relief for 2 to 4 hours. Application more than four or five times daily seldom is required. Should sensitization appear after repeated applications, further use should be discontinued.

Smith, Kline & French Laboratories cooperated by furnishing scientifi data to aid in the evaluation of dimethisoquin hydrochloride.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

The Council on Physical Medicine and Rehabilitation has authorized publication of the following article.

RALPH E. DE FOREST, M.D., *Secretary*

FEDERAL COMMUNICATIONS COMMISSION TYPE APPROVAL FOR MEDICAL ULTRASONIC APPARATUS

Fairly recently the Federal Communications Commi sion established new regulations for industrial and me ical ultrasonic apparatus.[1] In an article in THE JOURNA the Council on Physical Medicine and Rehabilitation i formed the medical profession of the intention of th Federal Communications Commission to establish suc regulations.[2] Only data pertinent to the medical profe sion concerning the FCC regulations follow; howeve persons concerned with the technical and precise appl cation of the commission's rules should consult the con plete regulations.

Definition.—Ultrasonic equipment covered by t regulations includes any apparatus that generates rad frequency energy of frequencies above 20 kilocycles p second and utilizes that energy to excite or drive an ele tromechanical transducer for the production and tran mission of ultrasonic energy for industrial, scientifi medical, or other purposes (ISM frequency bands).

Operation Without a License.—Ultrasonic equipme may be operated without a license provided the desig and operation complies with the technical limitations f such equipment and provided that the equipment h been (1) type approved by the commission or (2) ce tificated in accordance with commission requiremen and the certificate attached to the equipment or promi nently posted in the room in which the equipment i being operated. Ultrasonic equipment operating on fre quencies below 90 kilocycles per second and generatin less than 500 watts of radio frequency power may b operated without a license, type approval, or certifica tion, if such equipment complies with all other applicabl provisions of the regulations.

Technical Limitations.—1. Ultrasonic equipment shal be designed and constructed in accordance with goo

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1. Federal Communications Commission, Title 47—Telecommunication; Part 18—Industrial, Scientific, and Medical Service: Operation of Ultrasonic Equipment, Docket No. 11031; FCC 55-113, Federal Register **20**: 741-743 (Feb. 3) 1955.

2. Ultrasonic Therapy Apparatus and the Federal Communications Commission, report of the Council on Physical Medicine and Rehabilitation, J. A. M. A. **157**: 39 (Jan. 1) 1955.

engineering practice, with sufficient shielding and filtering to provide adequate suppression of emissions on frequencies outside the ISM frequency bands. 2. The fundamental frequency of operation shall fall outside the frequency bands 490 to 510, 2170 to 2194, and 8354 to 8374 kilocycles per second. 3. The varying conditions under which ultrasonic equipment is operated shall not result in radiation exceeding the following limits:

Frequency, Kilocycles/Sec.	Distance, Ft.	Field, μv/M.
Up to and including 490	1,000	$\frac{2400}{F_{kc}}$ *
Over 490 and up to and including 1600	100	$\frac{24000}{F_{kc}}$
Over 1600 exclusive of frequencies in the ISM frequency bands	100	15

---

* Frequency expressed in kilocycles per second.

4. On any frequency above 490 kilocycles, the radio frequency voltage appearing on each power line to the machine shall not exceed 200 μv. On any frequency below 490 kilocycles, the radio frequency voltage appearing on each power line to the machine shall not exceed 1,000 μv.

Type Approval.—Manufacturers of ultrasonic equipment desiring to obtain type approval for their equipment may request permission to submit such equipment to the Federal Communications Commission. To be acceptable for commission type approval, ultrasonic equipment must meet the following requirements: 1. It must comply with the technical limitations for ultrasonic equipment previously listed. 2. The design and construction of the equipment must give reasonable assurance of compliance with the rules for at least five years under normal operation and with average maintenance. 3. The equipment must also comply with additional general rules relative to type approval found in part 2 of the commission's rules.

Identification of Type Approval Equipment.—Equipment for which a certificate of type approval has been issued shall be identified by the insertion of the FCC type approval number on the name plate of the equipment; in addition, the manufacturer shall furnish each user of type approval equipment a certificate setting forth the conditions under which such equipment shall be operated.

Effect of Certificate of Type Approval.—A certificate of type approval issued by the commission constitutes a recognition that, on the basis of the tests made, the equipment appears to be capable of complying with the technical limitations in the commission's rules, provided such equipment is properly installed, maintained, and operated.

Changes in Type Approval Equipment.—No changes whatsoever may be made in ultrasonic equipment for which a certificate of type approval has been issued, except on specific prior approval by the commission.

Withdrawal of Certificate of Type Approval.—A certificate of type approval may be withdrawn by the commission for one of the following reasons: (1) if the type of equipment for which it was issued proves defective in service, (2) if under usual conditions of maintenance and operation such equipment cannot be relied on to meet the conditions set forth for the operation of the type of equipment involved, or (3) if any change whatsoever is made in the construction of equipment sold under the certificate of type approval issued by the commission, without the specific prior approval of the commission.

Certification Attesting Compliance with Rules.—A certification, as distinguished from a type approval certificate, attesting compliance with these rules may be affixed or posted for any ultrasonic equipment. The certification is based on an inspection of the equipment and measurements taken at the place of use after the ultrasonic equipment has been assembled and is ready for operation. This certification may be executed by any engineer skilled in making and interpreting field intensity measurements. The commission may require such an engineer to present proof of his qualifications to make such measurements.

Renewal of Certification.—This certification does not require renewal; however, when the commission has reason to believe that operation of the equipment concerned may be inconsistent with the rules, it may require a new certification based on a new set of measurements.

Interference from Complying Equipment.—In the event of interference to any authorized radio service caused by ultrasonic equipment operated in compliance with the commission's rules, steps to remedy such interference must be taken promptly; however, when interference to receivers arising from direct intermediate frequency pickup by such receivers of the fundamental frequency emission of type approved or certificated ultrasonic equipment operating in compliance with this subpart, this section of the rules does not apply.

Effective Date of New Regulations.—All ultrasonic equipment manufactured on or after July 1, 1955, must comply with the rules. Ultrasonic equipment manufactured prior to July 1, 1955, may be utilized until July 1, 1965; however, it must comply either with the new rules or with the rules for miscellaneous equipment in section 18.31 of the commission's rules, which require that devices be recertified every three years. After July 1, 1965, all such equipment must comply with the new rules.

SUMMARY

The Council is gratified that the Federal Communications Commission has established these regulations for ultrasonic equipment. They should help to minimize the possibility of radio interference caused by the operation of medical ultrasonic equipment. The effect of these regulations is that after July 1, 1955, ultrasonic equipment may be operated if it meets one of the following requirements: 1. The device must be type approved by the commission and bear the FCC type approval number on its name plate. 2. The device must be tested and certified by a competent engineer as meeting these new FCC rules. 3. If the device does not meet the new rules, it must be tested and certified every three years in accordance with the commission's older rules for miscellaneous equipment. In any event the apparatus certified in this way may not be operated after July 1, 1965. Physicians are urged to acquire only FCC type approved ultrasonic equipment in order to obviate the need for recertification and to be reasonably certain that their apparatus does not cause radio interference.

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PREMATURE INFANTS

Although there is some dissatisfaction with the grouping of all infants, including those in multiple births, whose birth weight is 2,500 gm. (5.5 lb.) or less as premature infants, this is still the most practical definition. Improved treatment has done much to save the lives of premature infants, but deaths in the first four weeks of life still occur at a high rate in these infants.[1] The greatest hope at present lies in preventing births from occurring prematurely. Every added week of gestation beyond the 28th week means a gain of 4 to 8 oz. (113.4 to 226.8 gm.) for the fetus, and every gain of 8 oz. cuts the expected death rate in half. The obstetrician can, therefore, do much to prevent prematurity by delaying delivery in patients who have not reached full term and by vigorous treatment of conditions that threaten to terminate pregnancy prematurely. It has been found that the causes of neonatal deaths are the same for premature and full-term infants. These include postnatal asphyxia and atelectasis, birth trauma, congenital malformations, infection, and blood dyscrasias. In the premature infants, however, the death rate from all these causes is higher than in the full-term infants and the proportionate distribution is different. Clifford[1] cites Burke's earlier findings in a series of 284 women. In this group all of the stillbirths, all but one of the neonatal deaths, and all but one of the premature births involved mothers whose prenatal diets were poor, especially in proteins. Clifford then cites Tompkins, who gave 750 expectant mothers a high-protein, high-vitamin, high-mineral diet with a limited intake of fluids and juicy fruits. None of the infants in this group were born prematurely, but in a similar group not on such a diet there were 37 premature infants. A correlation has been found to exist between the deficiency of the diet and the degree of prematurity. Although an inadequate diet is not the only cause of prematurity, it appears to be one of the most important and one that is frequently preventable. Crosse[2] conducted a follow-up study to determine to what extent premature babies later became a burden
to the community through excessive hospitalizatio
unfitness for military service, retarded mental develo
ment, or crime and drunkenness. A higher incidence
congenital defects has been observed in premature i
fants, but this is believed to be the cause of their pr
maturity and not a result of it. The development of a
premature baby depends on the cause and degree of i
prematurity; the presence or absence of complicatio
in pregnancy, labor, and the neonatal period; the quali
of the obstetric and neonatal care; and the parents' phy
ical and economic status. The author concluded th
prematurity per se did not cause future dependency.

The principles of treatment of the premature infa
include prevention of infection, maintenance of respi
tion and body temperature, and proper feeding, pref
ably with human milk.[3] Kagan and his co-workers[4] co
pared the weight gain in groups of premature babies f
on (1) manually expressed human milk; (2) human mi
with skimmed, cultured cow's milk added; (3) co
milk with the proportions of proteins, fats, and lacto
modified to simulate those found in human milk; and (
a half-skimmed cow's milk with added carbohydrates
high in protein and ash and low in fat. All groups we
given the same number of calories per unit of bo
weight. Those in group 4 made the greatest gains
weight, but, because this group got four times as mu
ash per unit of body weight as groups 1 and 2 and tw
as much as group 3, it is believed that the difference
weight gain depended on this difference in ash inta
with ash retention and consequent water retention. T
retention of ash was believed to indicate poor renal fu
tion in the premature babies, and the authors conclud
that weight gain in itself is not a good index of progr
in premature infants in the neonatal period.

In Chicago in 1922 a special premature service w
established at the Michael Reese Hospital. Although
growth was slow, its value became abundantly evide
and in 1932 the small premature service at the C
County Hospital was enlarged. In 1934 with the coop
ation of these two hospitals the Chicago Board of Hea
inaugurated a city-wide plan for the care of premat
infants.[5] It became mandatory that the board of hea
be notified by telephone within one hour of the birth
all premature babies, and unless the baby was in criti
condition transfer to one of the premature units was
ranged. The board of health provided a specia
equipped and staffed ambulance for this purpose. If t
baby was in critical condition, whether at home or in
hospital, an incubator was used, and if none was imme
ately available one was supplied on loan by the board
health. If the baby was at home a specially trained nu
was also supplied, and arrangements were made to tra
fer the baby to a premature unit within the first 24 hou
of life. The board of health also maintained a brea
milk service and impressed on the parents of all prem
ture babies the importance of follow-up care in an ou
patient clinic after the baby was discharged from t
hospital. Similar programs have been established in ma
other large cities. Thus with an increased understandi
of the causes of prematurity and the needs of the prem
ture infant much can now be done to prevent prematu
birth and to save those who in spite of preventive mea
ures are born with a subnormal birth weight.

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[1] Clifford, S. H.: The Problem of Prematurity: Obstetric, Pediatric, and Socioeconomic Factors, J. Pediat. 47: 13-24 (July) 1955.

[2] Crosse, V. M.: Is the Premature Baby Worth Saving? Am. J. Pub. Health 44: 1010-1014 (Aug.) 1954.

[3] Pakter, J., and Jacobziner, H.: A 5-Year Review of the Premature Infant Program in New York City, New York J. Med. 54: 3207-3215 (Dec. 1) 1954.

[4] Kagan, B. M., and others: Feeding Premature Infants—A Comparison of Various Milks, Pediatrics 15: 373-382 (April) 1955.

[5] Hess, J. H.: Chicago Plan for Care of Premature Infants, J. A. M. A. 146: 891-893 (July 7) 1951.

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

First Session, 84th Congress

Federal Advisory Council on Health

Senator Smith (R., N. J.), in S. 2405, Senator McCarthy (R., Wis.), in S. 2484, Congresswoman Church (R., Ill.), in H. R. 7345, and Congressman Frelinghuysen (R., N. J.), in H. R. 7532, have introduced identical measures to carry out the recommendations of the Commission on Organization of the Executive Branch of the Government (Hoover commission) to establish a permanent federal advisory council of health in the office of the President. The council appointed by the President would be composed of members of the medical profession and "persons with distinguished records in fields other than medicine." Blank spaces were left to be filled in the bill to specify the number of members of the two groups.

The functions of the council, most of which were recommended by the Hoover task forces, would be to: first, "Make a continuous evaluation of and recommendations as to policies and programs relating to Federal medical care and national health. Second. Advise on measures to assure adequate health manpower and hospital facilities for the Nation's health. Third. Review the various proposals and programs relating to hospital construction involving Federal funds, including Federal grants. Fourth. Advise with respect to the coordination of regional hospital services of all departments and agencies in the executive branch of the Government. Fifth. Advise with respect to more systematic cross-servicing between the various Federal medical agencies. Sixth. Advise upon measures for the adequate training and selection of the medical staffs of all Federal Services. Seventh. Advise the executive departments and agencies on all Federal medical policies and programs. Eighth. Advise the Selective Service System on the mobilization of medical personnel. Ninth. Advise concerning systems of project grants for health research programs of the Federal Government. Tenth. Report periodically to the President and to the executive departments and agencies involved on the success or failure of Federal health programs and policies. Eleventh. Report to the President and advise the Bureau of the Budget and the Congress with respect to such matters as they may request. Twelfth. Assist the Secretary of Defense to develop recommendations for revision of the Selective Service Act, as amended, so as to effect maximum utilization of medical personnel. Thirteenth. Advise the Administrator of the Veterans' Administration with respect to recommendations for closing certain hospitals belonging to such administration. Fourteenth. Review the manner in which the hospital facilities of the Veterans' Administration are being used and make recommendations for the disposal of more economic utilization of such facilities. Fifteenth. Advise the President, or any committee established or designated by him, with respect to the policies, programs and operations of the Food and Drug Administration and the Agricultural Research Service in the Department of Agriculture, with a view to eliminating those which are no longer necessary under present conditions and eliminating conflicts and overlapping of jurisdiction and functions between departments. Sixteenth. Make recommendation to improve preventive health services, including those rendered in connection with medical care of Federal beneficiaries, in the interests of both health conservation and long-range economy. Seventeenth. Review and make recommendations to the President with respect to the health research programs of the Federal Government. Eighteenth. Examine the means of establishing cooperative planning among the Federal agencies which provide psychiatric care. Nineteenth. Serve as consultant to the President's advisor on personnel with respect to making more uniform the personnel systems of the several Federal agencies using health personnel." The Senate measures were referred to the Committee on Labor and Public Welfare, the House measures to the Committee on Interstate and Foreign Commerce.

Military Status for Public Health Service

Senator Hill (D., Ala.), in S. 2587, and Congressman Priest (D., Tenn.), in H. R. 7600, would authorize the President to make the commissioned corps of the Public Health Service a military service in time of emergency involving the national defense. Under the present law the commissioned corps may have military status only in time of war. The proposed bills would authorize a one-time uniform allowance of $250 to officers in the lower ranks if the officer is required at any time by the surgeon general to wear a uniform. Under the present law the uniform allowance is effective only in time of war. Technical amendments to the Public Health Service Act would also be made, including retirement benefits, disability benefits, and credit for noncommissioned service. The Senate bill was referred to the Committee on Labor and Public Welfare, which reported it favorably without hearings, and it was passed by the Senate. The House bill was referred to the Committee on Interstate and Foreign Commerce.

Increased Earnings Under Social Security

Senator Smathers (D., Fla.), in S. 2513, would amend the Social Security Act to increase from $1,200 to $1,500 the amount individuals would be permitted to earn without deductions from their benefits upon retirement at 65 years of age. Under the present law, one month's benefits is lost for each $80 earned in excess of $1,200. The limit on earnings applies only to wages and salaries and does not apply to income from life insurance and annuities, pension plans, interest on bonds and savings, dividends from securities, or income from the use of capital investment. This measure was referred to the Finance Committee.

From the Washington Office of the American Medical Association.

Income Tax Deduction

Senator Humphrey (D., Minn.), in S. 2588, would amend the Internal Revenue Code "so as to allow a deduction for certain expenses incurred by a taxpayer for the care of his children while his wife is physically or mentally incapable of caring for such children . . . but only if such care is for the purpose of enabling the taxpayer to be gainfully employed." This measure was referred to the Finance Committee. Congressman Keogh (D., N. Y.) proposes, in H. R. 7602, for income tax purposes to allow for deductions for gifts to nonprofit voluntary health insurance plans before payment of income, gift, or estate taxes. This measure was referred to the Committee on Ways and Means.

Hospital Loans or Grants

Senator Clements (D., Ky.), in S. 2640, would revise and extend the authority of the Housing and Home Finance Administrator to make loans and grants to public and nonprofit agencies for construction of hospitals whose applications prior to June 30, 1953, were denied solely because of the unavailability of funds for such purpose. The authority would expire June 30, 1957. There would be authorized 5 million dollars for each fiscal year, ending June 30, 1956, and June 30, 1957. The bill was referred to the Committee on Banking and Currency.

Mentally Ill of Alaska

Senator Jackson (D., Wash.), in S. 2518, has introduced measures identical to H. R. 6334 and H. R. 6376, previously reported in THE JOURNAL, June 25, 1955, page 665. These measures would modernize the hospitals and commitment procedures for the mentally ill of Alaska and transfer from the federal government to the Territory of Alaska the responsibility and authority for hospital care and treatment of the mentally ill of Alaska. This measure was referred to the Committee on Interior and Insular Affairs.

Death Penalty for Narcotic Sale to Minors

Congressman Latham (R., N. Y.), in H. R. 6921, would make "the sale of narcotics drugs to a minor . . . a criminal offense punishable by death . . . if the drug has been shipped, transported, or carried in interstate commerce." This measure was referred to the Committee on Judiciary.

Food for Hill-Burton Hospital Patients

Congressman Rains (D., Ala.), in H. R. 7621, proposes "to provide for grants to State health agencies to assist Hill-Burton hospitals in providing food for the patients." This measure was referred to the Interstate and Foreign Commerce Committee.

Social Security for Dentists and Lawyers

Senator Langer (R., N. D.), in S. 2751, proposes to amend the Social Security Act to provide for voluntary coverage of lawyers and dentists under the Federal Old-Age and Survivors Insurance system. This measure was referred to the Committee on Finance.

Atomic Fall-Out

Senator Green (D., R. I.), in S. Res. 134, would endorse the "efforts of our chief delegate to the United Nations to take appropriate steps to work to establish within the United Nations procedures to receive, assemble, and report on radiological information collected by the various states with particular emphasis on radiation effects on human health and safety." This measure was referred to the Committee on Foreign Relations, favorably reported, and passed by the Senate.

Income Deductions for Contributions to Nonprofit Voluntary Health Insurance Plans

Senators Flanders (R., Vt.), Ives (R., N. Y.), and Lehman (D., N. Y.), in S. 2700, have introduced an identical measure with H. R. 7602, previously reported. In this measure they propose to allow income tax deductions for gifts to voluntary health insurance plans in calculating federal income tax. This bill was referred to the Committee on Finance.

Commission for Programs for the Aging

Congressman Ostertag (R., N. Y.), in H. R. 7499, would establish a 12-member fact-finding commission on problems of the aging, including (*a*) physical and mental aspects, (*b*) employment, (*c*) retirement programs, (*d*) housing, and (*e*) recreation. This bill was referred to the Committee on Education and Labor.

COMMISSION ON ACCREDITATION OF HOSPITALS

Dr. E. Vincent Askey, Speaker of the A. M. A. House of Delegates, has appointed a seven-man special committee to review the function of the Joint Commission on Accreditation of Hospitals. Letters of invitation to serve on the committee have been sent to Drs. W. C. Stover, Boonville, Ind., chairman; John F. Burton, Oklahoma City; Gerald D. Dorman, New York; George F. Gsell, Wichita, Kan.; Eugene F. Hoffman, Los Angeles; T. C. Terrell, Fort Worth, Texas; and George A. Unfug, Pueblo, Colo. The committee was appointed as the outgrowth of the introduction of six resolutions in the House of Delegates at the A. M. A. session in Atlantic City in June, 1955. Dr. Askey hopes that the committee will be able to submit some kind of a report to the House when it meets in Chicago next June.

HEALTH TIPS FOR TV AUDIENCES

Before the doctor comes, "what to do" about a sore back, dizzy spells, or blotches on the skin is a familiar cry in every household. To help mother cope with such emergencies, the American Medical Association now presents the third series of six five-minute films entitled, "What To Do." Featuring Actress Abby Lewis, this series presents authentic health information on eye injury, backache, baseball finger, dizziness, hay fever, and skin problems. Series 3 now is available from the A. M. A.'s film library for use by local medical societies over local television stations.

BUREAU OF MEDICAL ECONOMIC RESEARCH

This is the second and concluding part of the survey on the economic position of medical care during a quarter of century. The first part appeared in THE JOURNAL, *Sept. 3, page 41.*—ED.

THE ECONOMIC POSITION OF MEDICAL CARE, 1929-1953

Frank G. Dickinson, Ph.D.
and
James Raymond, M.A., Chicago

Medical Care Prices

Measurements of the changes in the level of medical care prices during this quarter century cannot be presented in the same manner as the changes in personal consumer expenditures for medical care. First, index numbers measuring changes in medical care prices were not developed by the United States Bureau of Labor Statistics for the first six years of this quarter century. Its so-called cost-of-living indexes for the six years 1929 to 1934 (on the basis of 1935-1939 average prices) were: 122.5, 119.4, 108.7, 97.6, 92.4, and 95.7; but no indexes were computed and published for medical care prices. As a partial offset for these missing price indexes for the first six years we have chosen to discuss medical care prices in 1954, although the last year in the personal consumer expenditure series was 1953. Second, a complication arises from the decision of the Bureau of Labor Statistics several years ago to abandon the 1935-1939 base and substitute the 1947-1949 base. Fortunately, this decision has been altered somewhat and some indexes on the old base period are still being compiled and published. Although these will be featured in our discussion of medical care prices, it will be necessary to make comparisons of old base and new base indexes for a number of items. Third, changes in the major classifications, that is, in the columns published each month in the appendix section of the *Monthly Labor Review* of the United States Department of Labor in the new base Consumer Price Index also complicate comparisons with the old base indexes. The number of major items (columns in the tables published monthly) has been increased from 9 to 13, but both the old and the new present separate indexes for 6 items: food, apparel, rent, gas and electricity, fuel, and house furnishings. There were also old base indexes for three items: fuels, electricity, and refrigeration (a grouping of three items), ice, and miscellaneous (such items as medical care, transportation, recreation, household operation, and personal care). There are also new base indexes for seven items: housing (a grouping of five of these major items), household operation, transportation, medical care, personal care, reading and recreation, and other goods and services. Because we must discuss both the old and the new base indexes, we shall use the term "indexes" to refer to these major categories whether they are in both sets of indexes or in only one, and the term "subindexes" for those indexes that are not, or were not, published monthly.

The Consumer Price Index, as it is now called, springs from a rather long line of efforts by the Bureau of Labor Statistics to measure changes in the level—not the level itself—of prices paid for many commodities and services by city consumers of moderate incomes. Retail prices of representative commodities and services are sampled monthly or quarterly in a number of retail outlets in selected cities in the United States. These sample prices are then used by the members of the staff to compute the monthly, quarterly, or annual indexes. Rather than paraphrase the description of the present Consumer Price Index given by the Bureau of Labor Statistics, we prefer to quote rather lengthy excerpts:

"The Consumer Price Index of the Bureau of Labor Statistics is a statistical measure of changes in prices of the goods and services bought by families of city wage earners and clerical workers. . . . A complete name for this index is: *'Index of Change in Prices of Goods and Services Purchased by City Wage-Earner and Clerical-Worker Families to Maintain Their Level of Living.'* It is referred to as 'The Consumer Price Index.' However, the long title contains the key to the meaning of the index.

"The index is concerned with *prices*. These are the retail prices of foods, clothing, housefurnishings, fuel and other goods; the fees paid to doctors and dentists; prices in barber shops and other service establishments; rents; rates charged for transportation, electricity, gas and other utilities; and so on. They are prices charged to consumers, including sales and excise taxes . . . urban wage-earner and clerical-worker families . . . are families of two or more persons living in the 3000 towns, cities and suburbs of the United States, ranging in population from small cities of 2500 people to New York City. . . . The average size in 1952 of the families included in the index was estimated to be about 3.3 persons, and their average family income was estimated at about $4160 after taxes. . . .

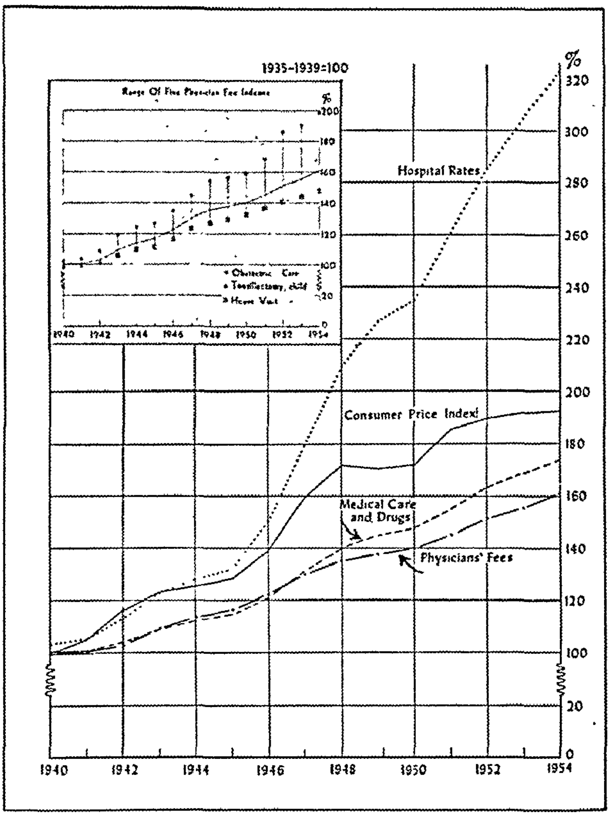

Chart V.—Consumer Price Index and medical care indexes, 1940-1954. Source: U. S. Bureau of Labor Statistics.

"The 'index market basket' is an estimate of the goods and services bought by this group of the population in 1952 to use, replace and add to their possessions, to keep up their 1952 level of living . . . the 'index market basket' does not reflect purchases of families at the lowest and highest extremes of the income scale, who live at different levels of living.

"The index is concerned with *change* in prices. It measures the effect of price changes on the cost of the goods and services in the 'market basket.' The content of the 'market basket'—that is, the quantities and qualities of goods and services that represent what families bought in 1952—is assumed to remain the same, so that the change in cost from month to month is the result of *changes in prices*. . . .

Director (Dr. Dickinson) and Staff Associate (Mr. Raymond), Bureau of Medical Economic Research, American Medical Association.

Regina Evans Holloman, research assistant, assisted in the preparation of the tables.

Because of space limitations the appendix has been omitted and will appear in the Bureau's reprints.

"Price changes are expressed in *percentage* terms, and the percent changes for various goods and services averaged and compared to some past period. . . . Thus, if we take the cost of the 'market basket' at the earlier reference date as equal to 100, the index for the later date measures, in percentage terms, how much the cost of the same 'market basket' has changed. An index of 110 means a 10 percent increase; an index of 90 means a 10 percent decrease.

"Index numbers are published by the Bureau of Labor Statistics to one decimal place. The index number of 100.0 is for the average of three years—1947, 1948, and 1949—the 'base period' of the index. Index numbers as published from month to month compare prices *at each date* with the average level of prices in these three years. . . .

"Even though American families buy thousands of different kinds and qualities of variously priced goods and services, prices of many groups of items change at about the same rate . . . so that a change in the price of one . . . may be representative of the others. . . .

"In 1950 and 1951 the Bureau priced and studied the price changes of hundreds of items [and] . . . selected about 300 items, which together can be used to estimate the average change in prices of all items. . . . It is important to be certain, however, that the calculation shows *only* price change and not changes due to other things, such as quantity or quality differences. . . . To prevent this, insofar as possible, the Bureau has prepared detailed specifications to describe the items that are priced for the index. . . ."[3]

Indexes for the years prior to 1953 were computed on the old base period. The price data were collected by this sampling process in 34 large cities only one of which had a population of less than 100,000 in 1950. Food and fuels were priced monthly in all of these cities, and other commodities and services were priced on varying cycles. Only in the five largest cities was the complete list sampled each month. According to Bulletin 1165 of the Bureau of Labor Statistics, the old base subindexes used in our tables for the years prior to 1953 were based on prices collected in the following 18 cities: Baltimore; Birmingham, Ala.; Boston; Chicago; Cincinnati; Detroit; Houston, Texas; Jacksonville, Fla.; Los Angeles; Memphis, Tenn.; Minneapolis, Minn.; Mobile, Ala.; New York; Philadelphia; Pittsburgh; Portland, Maine; St. Louis; and San Francisco. Prices for the new base indexes were collected monthly for food, fuel, and rent in 46 cities. But the old base subindexes for 1953 and 1954 presented in our tables (that is, all of the components of the medical care and drugs index, furniture, men's street shoes, women's cotton house dresses, and motion picture admissions) were compiled quarterly from prices collected in only 14 cities with a total population of about two-fifths of the population of the 46 cities. The 14 cities are: Atlanta, Ga.; Baltimore; Chicago; Cincinnati; Detroit; Los Angeles; Madison, Wis.; Newark, Ohio; New York; Philadelphia; St. Louis; San Francisco; San Jose, Calif.; and Youngstown, Ohio. In order to present subindexes (table 6) for the 20 categories under medical care and drugs for 1953 and 1954 it has been necessary for us to utilize subindexes based upon only 14 cities and computed on the old base period, which we prefer. It is not impossible, however, that the data for the 14 cities reveal the changes in prices as well as would have data from either the 18 or the 46 cities. Certainly this narrower base qualifies our analysis. The omission of these 20 subindexes would restrict the discussion to the new base period without any subindexes under medical care and drugs.

TABLE 6.—*Consumer Price Index, Index and Subindexes for Medical Care and Drugs, 1940-1954*
1935-1939=100.0

Adjusted Indexes (1)	1940 (2)	1941 (3)	1942 (4)	1943 (5)	1944 (6)	1945 (7)	1946 (8)	1947 (9)	1948 (10)	1949 (11)	1950 (12)	1951 (13)	1952 (14)	1953 (15)	1954 (16)
Consumer Price Index	**100.2**	**105.2**	**116.5**	**123.6**	**125.5**	**128.4**	**139.3**	**159.6**	**171.9**	**170.2**	**171.9**	**185.6**	**189.8**	**191.3**	**191.9**
Medical care and drugs	**100.8**	**101.4**	**104.2**	**109.2**	**112.6**	**115.3**	**121.6**	**131.6**	**140.1**	**144.9**	**147.9**	**155.0**	**163.3**	**168.5**	**173.9**
I. Medical care, excluding drugs	101.0	101.6	104.6	110.2	114.6	117.7	124.8	135.3	144.4	149.7	153.1	160.9	170.6	177.2	182.6
A. Physicians' fees (general practitioner, surgeon, specialist)	100.3	100.7	102.9	109.5	113.9	116.6	122.4	130.2	135.5	137.9	140.0	145.2	151.5	155.7	160.3
1. General practitioners' fees	100.4	100.7	102.9	109.3	114.0	116.6	122.4	130.3	135.2	137.7	139.8	145.2	151.7	156.0	161.1
(a) Office visit	100.4	100.5	102.4	108.4	113.8	117.2	123.5	131.5	136.9	139.0	140.9	146.0	151.7	157.2	163.5
(b) House visit	100.2	100.2	102.2	107.6	111.4	113.3	118.0	125.3	128.5	131.4	133.9	138.3	142.3	145.7	148.8
(c) Obstetric case	101.3	103.2	107.7	118.6	123.8	126.1	133.7	143.7	153.4	155.6	157.3	167.3	184.8	189.2	198.0
2. Surgeons' and specialists' fees	99.5	100.5	103.3	109.4	113.6	116.9	122.3	129.4	135.8	138.4	140.6	144.3	149.7	153.2	154.9
(a) Appendectomy, adult	100.3	101.5	104.4	110.6	114.5	118.2	122.4	128.2	133.1	134.2	137.4	141.6	147.4	150.3	151.4
(b) Tonsillectomy, child	98.5	99.2	101.9	107.8	112.8	115.7	122.3	130.7	138.7	142.8	144.0	147.2	152.4	156.8	160.0
B Dentists' fees	101.1	101.5	104.1	108.8	114.8	119.7	126.9	137.4	144.8	150.6	154.3	160.0	163.3	168.8	174.5
1. Fillings	101.8	102.4	105.7	109.2	113.8	118.8	127.3	137.7	145.1	150.9	154.5	159.5	163.5	169.0	174.1
2. Extractions	100.8	101.1	103.0	107.8	115.1	121.4	128.4	139.0	146.8	152.9	156.9	164.5	166.4	172.7	181.3
C. Optometrists' fees, eyeglasses	101.9	102.1	103.4	107.9	110.5	112.0	114.0	118.6	123.6	127.6	128.9	134.6	136.2	134.9	133.2
D. Hospital rates	103.5	105.5	113.7	122.8	128.3	132.3	150.6	179.6	209.7	226.8	235.3	260.7	285.6	304.5	322.1
1. Men's pay ward	104.2	107.1	116.9	126.9	133.2	136.0	158.4	191.4	231.6	253.5	265.5	297.2	327.8	351.3	372.4
2. Semiprivate room	103.7	105.9	114.2	122.2	127.5	133.3	149.1	175.1	204.2	221.7	229.6	253.6	276.2	292.2	307.5
3. Private room	103.3	104.8	111.8	120.1	125.1	128.9	145.4	169.7	194.7	207.7	213.7	233.7	254.7	271.0	287.8
E. Group hospitalization *	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	103.1	116.4	126.2	135.4
II. Prescriptions and drugs	99.9	100.8	103.1	103.8	104.7	105.6	107.5	115.4	121.5	123.3	124.8	128.4	129.5	130.8	132.2
A. Prescriptions	100.7	101.9	104.6	105.5	107.2	108.7	112.5	123.7	133.9	137.1	140.7	147.7	149.4	149.5	152.4

Source: U. S. Bureau of Labor Statistics published and unpublished data. The Consumer Price Index is based on prices collected in 34 or 46 cities; indexes for individual items are based on prices collected in 18 or 14 cities. See also chart V.

* December, 1950 = 100.0.

Beginning in January, 1953, the Bureau of Labor Statistics shifted over to the new base, 1947-1949. Other important changes that were put into effect were discussed in our Bureau Bulletin 95, "Old and New Base Periods for Medical Care Price Indexes"; we analyzed in some detail the effects of shifting from the old base to the new base. The objections made to the change in base periods were: (1) the changes were made during an inflationary period, (2) the years chosen as the new base period (1947-1949) were themselves inflationary years, (3) the selection of these years assumed, unjustifiably, that most of the components of the Consumer Price Index reflected the inflationary trend to approximately the same extent, (4) the selection of these particular years also assumed, again unjustifiably, that substantially all the post-World War II readjustments in prices had occurred prior to Jan. 1, 1947. A brief examination of one of the major components of the total Index, rent, will demonstrate the last two objections. Rents could not have kept pace with other inflationary trends because rents were still subject to the controls imposed during wartime, and rents were not decontrolled until the fall of 1953, well after the close of the new base period. That the postwar years through the end of 1951 were inflationary years is shown clearly by chart V. The Consumer Price Index, based on the 1935-1939 average, rose steeply each year from 1945 to 1951, from 128.4 to 185.6. Its rate of climb began to diminish late in 1951; as may be seen from the even numbered columns of table 6 and in chart V, the Consumer Price Index rose only 1.5 points from 1952 to 1953. In 1953 the Index was 191.3, and by 1954 it was 191.9, i. e., it had climbed scarcely more than ⅓ point during 1954. (For the first quarter of 1955, it was 191.1.) This indicates that since 1951 the consumer price level was stable.

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[3] The Consumer Price Index: A Short Description of the Index as Revised, 1953, United States Department of Labor, Bureau of Labor Statistics, January, 1953.

Bulletin 95 also cited some of the desirable changes in the revised Index: 1. The "index market basket" was enlarged so that about 300 items are now being priced as compared with about 200 items for the old base index. 2. The contents of this index market basket were modernized; e. g., penicillin was substituted for quinine and the price of home maintenance was obtained for the first time. 3. The major groups were increased from six to eight. 4. The method of assigning a weight to each item priced was changed so as to utilize 1950 population data rather than data from the 1940 census. 5. The number of cities where prices were sampled was increased from 34 to 46. This larger number of cities is more nearly representative of the distribution of all United States consumers than was the former list of 34 large cities. Our conclusion was that if indexes were not presented by the Bureau of Labor Statistics for both the old (1935-1939 = 100) and the new (1947-1949 = 100) base periods, an illusory effect might be created for such components of the Consumer Price Index as rent and medical care. As noted, the Bureau of Labor Statistics has decided to continue to provide some indexes on the old base. These old base subindexes (for the 20 categories under medical care and drugs and other categories) for 1953 and later are not published monthly in the *Monthly Labor Review* but, instead, in occasional publications of the Bureau of Labor Statistics; as noted, subindexes based on the 1935-1939 averages frequently do not have as broad a samplying base as do the regularly published indexes based on the 1947-1949 averages. The annual old base indexes and subindexes for the years since 1949 are presented in the last five columns of table 6 [and in the even-numbered columns, except (2) of table 7].

The years 1935-1939 constitute a better base period than the years 1947-1949. Our major emphasis is, therefore, placed on the "old base" indexes; some are presented in chart V. Moreover, more subindexes of the eight major groupings have actually been published by the Bureau of Labor Statistics on the old base than on the new base. Item indexes based on 1947-1949 = 100 are, however, provided here for the reader who desires to make comparisons; those new base subindexes not made available by the Bureau of Labor Statistics have been calculated—the odd numbered columns of table 7 and the bottom four rows of table 8. Where this has occurred in tables 7 and 8, entries will be found in table columns headed "Conversion Factor"; otherwise, all price indexes appearing in this bulletin are those published or furnished by the Bureau of Labor Statistics.

Table 8 shows indexes for both the 1935-1939 and 1947-1949 base periods for selected commodities and services. Indexes and subindexes for the year 1954, columns (12) and (13), showing the end-results of the shift in base periods, reveal three patterns: (1) individual indexes that were higher than the entire Consumer Price Index on the old base, 191.9, and become lower (than 114.8) on the new, (2) indexes that were lower than the entire Consumer Price Index on the old base and became higher on the new and, (3) those indexes that were high or low on both periods. These patterns reflect the differences in price movements before and after 1947-1949. The food index reflects the first pattern; on the old base, the 1954 index for food, 227.5, was considerably above the entire Consumer Price Index, 191.9, but on the new base it was below it, 112.6 versus 114.8. This means that food prices increased greatly prior to 1947-1949 but have risen less rapidly than prices for other items since that time. Price indexes for personal care, as well as the subindexes for furniture and women's cotton house dresses, reflect the same pattern as food; the prices of women's cotton house dresses in 1954 were sharply misrepresented by the shift in base period —276.1 versus 94.7. The 1954 indexes for medical care and drugs on the old and the new base periods show the second pattern. They are lower than the entire Consumer Price Index on the old base, 173.9 versus 191.9, and higher on the new base, 125.2 versus 114.8. The price indexes for rent and transportation also follow this second pattern in which the new base indexes suggest high levels of prices in 1954 because the prices lagged so much before 1947-1949 and subsequently rose relatively fast. While price increases for these items were rapid after 1947-1949—serving to bring these prices into line with those for commodities and services that had accelerated earlier—their

TABLE 7.—*Consumer Price Index, Index and Subindexes for Medical Care and Drugs, 1950-1954*
1935-1939=100.0, and 1947-1949=100.0

Adjusted Indexes (1)	1947-1949 Ave. Old Base (2)	Conversion Factor 100 ÷ Col. (2) (3)	1950 Old Base (4)	1950 New Base (5)	1951 Old Base (6)	1951 New Base (7)	1952 Old Base (8)	1952 New Base (9)	1953 Old Base (10)	1953 New Base (11)	1954 Old Base (12)	1954 New Base (13)
Consumer Price Index	**167.2**	.....	**171.9**	**102.8**	**185.6**	**111.0**	**189.8**	**113.5**	**191.3**	**114.4**	**191.9**	**114.8**
Medical care and drugs	**138.9**	.....	**147.9**	**106.0**	**155.0**	**111.1**	**163.3**	**117.2**	**168.5**	**121.3**	**173.9**	**125.2**
I. Medical care, excluding drugs	143.1	0.699	153.1	107.0†	160.9	112.5†	170.6	119.2†	177.2	123.9†	182.6	127.6†
A. Physicians' fees (general practitioner, surgeon, specialist)	134.5	0.743	140.0	104.1	145.2	107.9	151.5	112.6	155.7	115.7	160.3	119.1
1. General practitioners' fees	134.4	0.744	139.6	104.0	145.2	108.0	151.7	112.9	156.0	116.1	161.1	119.9
(a) Office visit	135.8	0.736	140.9	103.7	146.0	107.5	151.7	111.7	157.2	115.7	163.5	120.3
(b) House visit	128.4	0.779	133.9	104.3	138.3	107.7	142.3	110.9	145.7	113.5	148.8	115.9
(c) Obstetric case	150.9	0.663	157.3	104.3	167.3	110.9	184.8	122.5	189.2	125.4	198.0	131.3
2. Surgeons' and specialists' fees	134.5	0.743	140.6	104.5	144.3	107.2	149.7	111.2	153.2	113.8	154.9	115.1
(a) Appendectomy, adult	131.8	0.759	137.4	104.3	141.6	107.5	147.4	111.9	150.3	114.1	151.4	114.9
(b) Tonsillectomy, child	137.4	0.728	144.0	104.8	147.2	107.2	152.4	110.9	156.8	114.2	160.0	116.5
B. Dentists' fees	144.3	0.693	154.3	106.9	160.0	110.9	163.3	113.2	168.8	117.0	174.5	120.9
1. Fillings	144.6	0.692	154.5	106.9	159.5	110.4	163.5	113.1	169.0	116.9	174.1	120.5
2. Extractions	146.2	0.684	156.9	107.3	161.5	112.5	166.4	113.8	172.7	118.1	181.3	124.0
C. Optometrists' fees, eyeglasses	123.3	0.811	128.9	104.5	134.6	109.2	136.2	110.5	134.9	109.4	133.2	108.0
D. Hospital rates	205.4	0.487	235.3	114.6	260.7	127.0	285.6	139.1	304.5	148.3	322.1	156.9
1. Men's pay ward	226.5	0.442	265.5	117.4	297.2	131.4	327.8	144.9	351.3	155.3	372.4	164.6
2. Semiprivate room	200.3	0.499	229.6	114.6	253.6	126.5	276.2	137.8	292.2	145.8	307.5	153.4
3. Private room	190.7	0.524	213.7	112.0	233.7	122.5	254.7	133.5	271.0	142.0	287.8	150.8
E. Group hospitalization *	.....	.....	.....	.....	103.1	.....	116.4	.....	126.2	.....	135.4	.....
II. Prescriptions and drugs	120.1	0.833	124.8	104.0	128.4	107.0	129.5	107.9	130.8	109.0	132.2	110.1
A. Prescriptions	131.6	0.760	140.7	106.9	147.7	112.3	149.4	113.5	149.5	113.6	152.4	115.8

Source: U. S. Bureau of Labor Statistics published and unpublished data. The Consumer Price Index is based on prices collected in 34 or 46 cities; indexes for individual items are based on prices collected in 18 or 14 cities.

* December, 1950 = 100.0.

† With the exception of the Consumer Price Index and the index for total medical care and drugs, all other indexes in the "New Base" columns are our estimates obtained by multiplying the "Old Base" index by the conversion factor in col. (3).

increase over the entire period, 1935-1954, has not been as great as that for the entire Consumer Price Index.

For the remaining items, D to G, in table 8 the shift in the base period does not change the rank order. The index for reading and recreation was lower than the entire Consumer Price Index on both bases, while the subindex for motion picture admissions was slightly higher on both. Although the subindex for men's street shoes was higher on both bases, it was so much higher on the old base (268.4 versus 191.9) than on the new base (119.7 versus 114.8) that the misrepresentation of the 1954 new base subindex is almost as great as that for women's cotton house dresses. If it had been possible and feasible for the Bureau of Labor Statistics to present price quotations in dollars and cents along with price indexes and subindexes for each year since 1935, the mirage of favorable prices to consumers in 1954 for food, personal care, furniture, women's cotton house dresses (and men's street shoes) and unfavorable prices for rent, transportation and medical care would disappear; in fact, the reverse would be evident.

The stability of the entire Consumer Price Index during 1952-1954, when it moved so narrowly from 189.8 to 191.3 to 191.9, suggests that this later period would outrank 1947-1949—when the Index jumped from 159.6 to 171.9 and 170.2—as a good choice for a post-World War II base period. Having criticized the undue haste in selecting 1947-1949 as a base period, we are now bold enough to suggest that it be quickly abandoned in favor of 1952-1954; the latter approaches the stature of a "normal period."

TABLE 8.—*Comparisons of Selected Price Indexes for 1950-1954 on the 1935-1939 Base and the 1947-1949 Base*

Adjusted Indexes (1)	1947-1949 Ave. Old Base (2)	Conversion Factor 100 ÷ Col. (2) (3)	1950		1951		1952		1953		1954	
			Old Base (4)	New Base (5)	Old Base (6)	New Base (7)	Old Base (8)	New Base (9)	Old Base (10)	New Base (11)	Old Base (12)	New Base (13)
Consumer Price Index	**167.2**	.....	**171.9**	**102.8**	**185.6**	**111.0**	**189.8**	**113.5**	**191.3**	**114.4**	**191.9**	**114.8**
Medical care and drugs	**138.9**	.....	**147.9**	**106.0**	**155.0**	**111.1**	**163.3**	**117.2**	**168.5**	**121.3**	**173.9**	**125.2**
A. Food	202.0	.....	204.5	101.2	227.4	112.6	231.5	114.6	227.9	112.8	227.5	112.6
B. Rent	120.4	.....	131.0	108.8	136.2	113.1	141.9	117.9	149.4	124.1	154.7	128.5
C. Transportation	144.6	.....	162.2	111.3	173.2	118.4	184.1	126.2	187.5	129.7	185.1	128.0
D. Personal care	174.2	.....	176.6	101.1	192.5	110.5	194.9	111.8	196.5	112.8	197.5	113.4
E. Recreation and tobacco	156.2	.....	163.8	103.4	168.5	106.5	172.6	107.0	.....	.....	.....	.....
Reading and recreation	.....	.....	.....	.....	.....	.....	.....	.....	168.7	108.0	167.1	107.0
Motion picture admissions	167.6	0.597	170.3	101.7*	172.8	103.2*	174.2	104.0*	182.7	109.1*	194.4	116.1*
F. Furniture	212.3	0.471	215.7	101.6*	236.4	111.3*	231.3	108.9*	230.2	108.4*	228.1	107.4*
G. Men's street shoes	224.0	0.446	236.1	105.3*	269.4	120.2*	265.4	118.4*	265.2	118.3*	268.4	119.7*
H. Women's cotton house dresses	291.7	0.343	271.5	93.1*	282.5	96.9*	275.0	94.3*	276.7	94.9*	276.1	94.7*

Source: U. S. Bureau of Labor Statistics published and unpublished data. The Consumer Price Index is based on prices collected in 34 or 46 cities; indexes for individual items are based on prices collected in 18 or 14 cities.

* These "New Base" indexes are our estimates obtained by multiplying the "Old Base" index by the conversion factor in col. (3).

SUBINDEXES FOR MEDICAL CARE

The subindex for physicians' fees has been consistently lower than that for the broader subindex, medical care excluding drugs. In 1954 the subindex for medical care excluding drugs was 182.6 (table 6), while that for physicians' fees was 160.3—22.3 points lower. The subindex for physicians' fees was computed from a sample of general practitioners' fees for office (163.5) and house visits (148.8) and obstetric cases (198.0) in certain cities; and by pricing surgeons' and specialists' fees for performing appendectomies in adults (151.4) and tonsillectomies in children (160.0). The increases in the subindexes for physicians' fees are fairly similar, except for the obstetric case. As indicated in the inset in the upper left-hand corner of chart V, there is an ever-widening spread since 1943 between the lowest subindex, house visit, and the highest subindex, obstetric case. (We have been unable to find conclusive evidence that a portion of the rise in this subindex has resulted from a measurable increase since 1935 in the quantity of physicians' services given in an obstetric case.) The forces of supply and demand being what they are, it is perhaps surprising that the great increase in number of babies born in 1953 over the number born in 1945 has *not resulted in an even greater post-World War II increase in* these subindexes, particularly for obstetric care; in 1945 there were 2,700,000 births as compared with 3,900,000 in 1953.

The subindexes for dentists' fees rose 3.3 points from 1951 to 1952, 5.5 points from 1952 to 1953, and 5.7 points from 1953 to 1954. The average of the four quarterly indexes for dentists' fees for 1954 was 174.5; the subindexes for dental extractions show, however, more rapid and marked increases. The subindexes for hospital room rates have continued their disproportionately rapid rate of increase. The 1954 subindex for hospital room rates was 322.1, that is, hospital room rates apparently were 222% higher in 1954 than in 1935-1939. Moreover, the 1954 subindex is 130 points higher than the Consumer Price Index, 148 points higher than the medical care and drug index, and 162 points higher than the subindex for physicians' fees. The indexes for medical care and drugs would have been markedly lower if the component subindexes for hospital room rates had not skyrocketed. This subindex reflects only changes in room rates, not changes in the unit prices of laboratory and other "extra" services that the attending physician orders for his patient. Population increase and especially the big baby crop of the postwar years have, together with health education, increased greatly the demands for hospital care. In 1929 only 29% of the United States births occurred in registered hospitals, but in 1953 the percentage was 85; and, in some states, the percentage was as high as 98. The subindex of 132.2 for prescriptions and drugs, as a whole, shows the least increase of any grouping in table 6; the 1954 subindex for prescriptions alone was 152.4, and its course in the 1950's is parallel to the course of the subindex for surgeons' and specialists' fees for appendectomies performed on adults.

NEW BASE INDEXES

The purpose of table 7 is to provide a counterpart to the missing breakdowns for medical care items on the new base period, 1947-1949. One general conclusion may be drawn from a perusal of this table: Even on the old base, the rate of increase in the index for medical care and drugs, as well as for one of its chief components, physicians' fees, has been more rapid in recent years than for the entire Index. Readers of current Department of Labor publications and monthly press releases, seeing only the new base indexes for the entire Index and for medical care and drugs (the first two rows of the odd numbered columns of table 7) in the published tables, will note that the medical care index is rising at a faster rate than the entire Index, but readers will not see the sharply rising subindexes for hospital rates, a subindex that has risen far faster than the other subindexes of medical care. They may very well conclude that the upward change in every component of medical care prices is relatively greater than upward changes in prices for all consumer goods and services. Most important, they will not have before them the old base subindexes indicating that other medical care prices continue to be quite reasonable.

The first two rows of table 7 on the new base are published monthly and are given wide publicity in the press. We have used the published breakdowns (table 6) of the medical care items on the old base and a conversion factor to obtain "conversion subindexes" on the new base. The conversion factor is the reciprocal (multiplied by 100) of the averages for 1947-1949 of the old base subindexes; there is one conversion factor for each subindex. These conversion factors were then applied to the old base subindexes for each year since 1949 to obtain the conversion subindexes on the new base. This procedure does not, of course, increase the number of cities in the sample from 14 or 18 to 34 or 46 in the computed new base subindexes. In that sense these computed new base subindexes in the odd-numbered columns of table 7 do not have the sampling coverage of the medical care and drug index on the new base published each month. They provide, in a sense, a second basis—in addition to table 6—for watching the behavior of the subcategories of medical care and drugs on the new base during the period, 1950 to 1954, and directly comparing each with the entire Consumer Price Index and the index of medical care and drugs. Similar comparisons for years after 1949 can be made from table 6.

The 1954 subindex for physicians' fees, 119.1, was above the entire (new base) Consumer Price Index of 114.8 [column (13), table 7]. The 1954 subindex for general practitioners' fees was 119.9 and for surgeons' and specialists' fees, 115.1. The latter was very close to the entire Consumer Price Index for 1954, 114.8. The principal reason why the subindex for general practitioners' fees was 5.1 points higher is, of course, the rise in fees for obstetric case; this subindex was 131.3 in 1954, the only really moderately high subindex among the seven for physicians' fees. The upward tug of fees for obstetric care is indicated in the inset in chart V for all the years since 1939. The subindex for hospital room rates was 156.9 for 1954. Again, it is this part of the medical care and drugs index that is mainly responsible for the 1954 new base index of medical care and drugs being over 10 points above the entire Consumer Price Index, 125.2 versus 114.8. Finally, the 1954 subindex for prescriptions and drugs was only 110.1; this item is, of course, a commodity and not a service, and the American genius for efficient mass production is among the factors responsible for keeping drug prices and, in turn, their price subindexes low. Indeed, it is unfortunate that some genius at mass production cannot put hospital rooms, therapy, and nurses on an assembly line and invent a machine able to give a patient after operation a bath and handle several tubular appendages to take care of such necessities as drainage and injections. The chores incident to getting sick people well must still be carried out by artful human hands. The shorter work week, the severe competition of other job opportunities, and similar factors have continued to push upward the nursing and other labor costs of operating a hospital—almost two employees are needed per patient. Unlike physicians and dentists, the hospital is an institution, and the services that it sells are produced by individuals with equipment, food, and supplies. Some of these were still in the inflationary spiral in 1954, with no end in sight. Fortunately the average length of stay of patients continues to decline.

This discussion of new base indexes and subindexes and our use of a conversion factor on the old base subindexes to develop new base subindexes for the categories of medical care and drugs should not obscure our argument against the new base itself. The new base period was a period of rising prices in the United States rather than a "normal" period. The suppliers of those goods and services that had risen rapidly in price by 1947-1949 may prefer to use the new base period solely because it makes their product or service seem low in price regardless of the current dollar price and regardless of any general consideration of the merits of choosing a postwar inflationary period for a base for this very important Index. Insofar as the Bureau of Labor Statistics measures changes in the levels of prices of medical care and drugs, we are entitled to state that, with the exception of hospital room rates, no medical care subindex has risen as rapidly as the Consumer Price Index since 1935-1939. On the other hand, we have frankly admitted that the subindexes for physicians' fees, notably for an obstetric case, have risen more rapidly since 1947-1949 than has the entire Consumer Price Index. As time passes, the monthly reports of changes in these indexes may well obscure the facts for the longer period of time, 1935-1954. Every student of economics is confronted with choices of periods of time to study. We have set forth the conclusions based upon these two intervals of time, one long and one short, and stated a strong preference for the longer period.

Changes in Efficiency and Incomes

One established method of estimating the volume of production is to divide an index of dollar sales or purchases by a suitable index of prices. This procedure is sometimes called "deflation of a dollar series" and the result, a "constant price series." This division is designed to eliminate the effect of changes in prices. In using the indexes of personal consumer expenditures in table 4 and the indexes of consumer prices of table 6 for the same items, it should be remembered that these two series do not completely match. One series is published by the Department of Commerce for its purposes and the other series by the Department of Labor for its purposes. Nevertheless, the two fit about as well as most pairs of indexes of dollars spent and prices paid. Setting the ratio between the two indexes equal to 1.0 in the old base period, 1935-1939, we note that the index of personal consumer expenditures in 1947-1949 was 274 as compared with the Consumer Price Index of 167, thereby establishing a production index of 1.6 for 1947-1949; it was 1.8 in 1950 and 1.9 in 1953.

The production ratio for medical care alone was 2.0 (281 divided by 139) in 1947-1949; it was 2.2 in 1950 and 2.3 in 1953. (A production ratio cannot be presented at this time for 1954 because the data for computing the index for the numerator, total personal consumer expenditures for medical care, has not been reported.) The 1953 production ratio for physicians' services was 2.2 (343 divided by 156), for dentists' services 1.6, and for hospitals 1.9. The data in the various tables permit computations of other production ratios. The 1953 production ratios for physicians and dentists indicate a gross increase in the amount of their services consumed by the people, especially physicians' services. Considering the increase in the number of physicians and dentists since the base period and other qualifying factors, this procedure indicates an increase of more than 69% in the output per physicians and more than 33% in the output per dentist. Moreover, since the population of the United States increased only 23% between 1935-1939 and 1953, it follows that there has been a marked increase in the consumption of medical services per capita, possibly as much as 75%. The precise amounts of the increases in the quantity of medical care per capita and in the "output per physician" can scarcely be stated herein because of a number of qualifying factors of a technical nature, but this process of deflation clearly indicates a very considerable increase in the per capita consumption of medical services by American consumers. As in other parts of this study, we are here concerned only with personal consumer expenditures.

These increases in the quantity of medical care per capita, and in the quantity of physicians' services per capita and per physician, have not occurred in isolation. They are interlocked with other social and economic changes. The increase in the gross national product, in national income, and in personal consumer expenditures were factors. The altered patterns of food distribution and consumption, improvements in transportation, and the raising of the levels of health education have helped to increase the technological efficiency of physicians. The significant increase in the use of personally owned automobiles has made it easier and more economical for the patient to consult his physician in the office and the hospital; in turn, this has reduced the physician's unproductive time spent in going to see his patients, sometimes at a considerable distance, thereby enabling the physician to see more patients and less of the countryside. The physician has also been aided by developments in the drug industry and the improvement in its products. The expansion in the range of possible treatments has placed a much greater premium on the physician's knowledge of systemic medicine, biochemistry, and a long line of related subjects, as well as upon his skills in using new tools. This, in turn, has made medical education and training longer and more expensive. The refinement and standardization of physicians' skills and the growth in the number of paramedical personnel (such as nurses, laboratory technicians, and physical therapists), the use of more and better scientific equipment in physicians' offices as well as in hospitals, and the increased concentration of people and facilities in the metropolitan centers have all contributed to the physician's increased efficiency as a producer and, hence, to a greater medical output per physician. Although such a consideration is *outside the scope of this study*, it should be noted that the services of physicians have increased the technological efficiency of the working population.

The increase in the output per physician demonstrates that a nose count of physicians or a determination of the population per physician is a highly inadequate measure of the supply of physicians' services. It is no more reasonable to use a count of physicians as a measure of supply of medical services than it is to use a count of agricultural workers as a measure of food supply. Indeed, the quality, quantity, and availability of food in the United States have increased greatly during the past quarter century, while the percentage of gainfully employed people in agriculture has been steadily declining. While in 1900 one farmer produced only enough food to supply himself and seven others, today he supplies himself and 18 others. The number of rural mail carriers has also declined, while the volume of mail delivered has increased by leaps and bounds. A dynamic economy requires that the number of persons per 100,000 population engaged in some occupations and professions should decline in order to expedite progress, whereas in other occupations and professions the number of persons per 100,000 population should increase. It is entirely possible that the tremendous increase in the technological efficiency of physicians—in the "output per physician"—and the promise of the continuance of this rapid rate of increase imply that the number of physicians per 100,000 population should decline.

ABILITY TO PAY

The foregoing discussion of changes in personal consumer expenditures for medical care and in the indexes of medical care prices raises the question of changes since 1935-1939 in the ability to pay for medical care. According to data published regularly in the *Monthly Labor Review* of the Department of Labor,[4] the average gross weekly earnings of production workers in manufacturing industries was $22.42 (computed) in 1935-1939 and $71.64 in 1954; that is, the ratio for the latter year was 3.20, a gain of 220% over the base period. A discussion of weekly wages after withholding taxes and other taxes have been deducted is beyond the scope of this study of consumers, as individuals and not as taxpayers. (Shortly before the charts were engraved and the tables set in type, we computed the average for the 12 months of 1954 as $71.64. The official average, $71.86, was not available soon enough. Consequently no corrections have been made in table 9 and chart VI—the 1954 ratio should be 3.21, not 3.20, and the hospital percentage should be 100, not 101.)

Year	Average Weekly *Earnings*	Ratio *(1935-1939 = 100)*
1935-1939	$22.42	1.00
1947-1949	53.01	2.36
1950	59.33	2.65
1951	64.71	2.89
1952	67.97	3.03
1953	71.69	3.20
1954	71.64	3.20

Consider a person who had an illness in 1937 who paid a physician $22, his wages for one week, for 11 office calls. These 11 office calls, if the unit price had changed precisely at the rate shown in the index for office visits [column (12), table 9], would have been priced 63.5% higher in 1954, or about $36. But the average gross weekly earnings in 1954 were approximately $72 instead of $36. Only 51% of the average week's wages in 1954 would have been required to purchase the amount of office visits to a physician that could have been purchased with an entire week's wages in 1935-1939. Consider also a person who spent five days in a hospital bed in 1937 at the rate of $4.50 a day, or a total of $22.50, one week's wages. The index for hospital room rates indicates that this hospital bed would have been priced at 322.1% of the base period price, or about $72.50 for the five-day stay; almost 101% of a week's pay in 1954 would have been required to purchase the amount of hospital service (five days) that could have been purchased with one week's wages in 1935-1939.

Other percentages of one week's wages in 1954 for variou items are presented in column (13) of table 9 and in chart VI. Most of these percentages are around 50 for the medical care an drugs items, with a low of 46 for a house visit and highs o 62 for an obstetric case and the 101 already noted for hospita room rates. In the lower half of the table the percentages fo the selected items show a low of 48 for rent and highs of 8 for men's street shoes and 86 for women's cotton house dresses The standard of reference here is the 60% for the group of th commodities and services included in the entire Consumer Pric Index; items for which the percentage was below 60 indicat a more favorable situation for buyers in 1954 than for the group of commodities and services included in the Consumer Price Index.

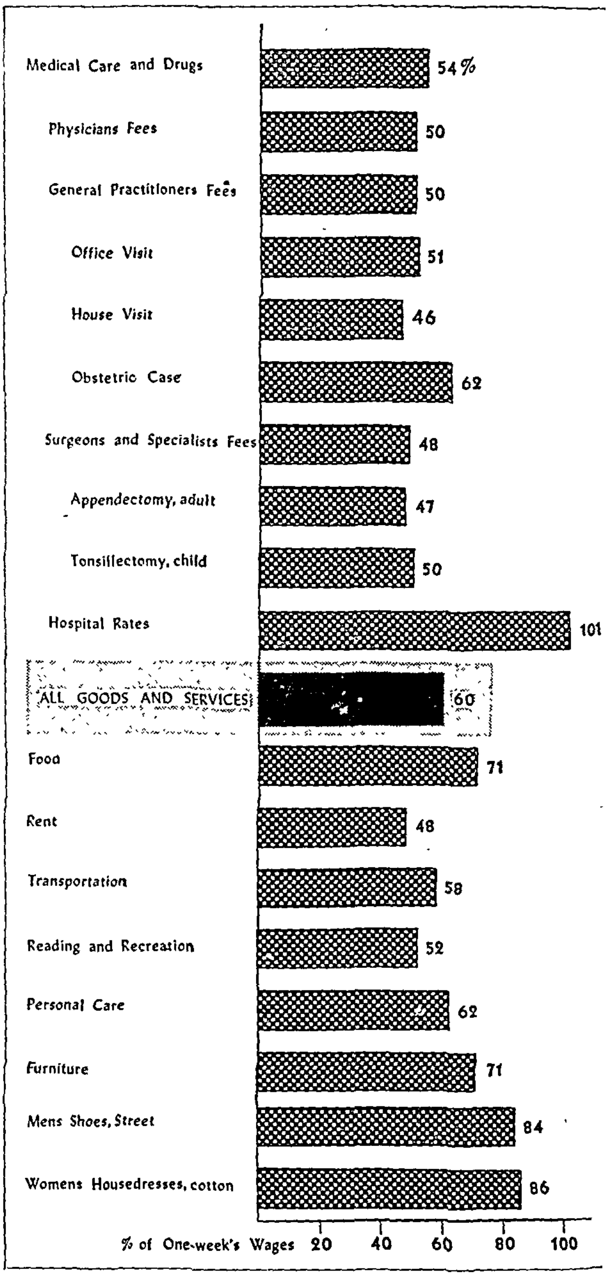

Chart VI.—Percentage of one week's wages in 1954 required to pu chase amount of medical care and other items that could be purchase with one week's wages in 1935-1939. Source: U. S. Bureau of Labo Statistics.

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[4] Monthly Labor Review 78: 502, table C-2 (April) 1955.

These percentages of one week's pay, particularly those below 60, may come as a surprise, but a moment's reflection will place them in perspective. Gross weekly wages rose more rapidly than most unit prices for medical care. Broadly speaking, the earnings of the American people are related to total personal consumer expenditures. The very favorable behavior of medical care prices in relation to the stability in the percentage of total consumer expenditures for medical care items during this period points inevitably to the conclusion that the quantity of medical care purchased by the people has been increasing rapidly. This increase in the quantity of medical care that people have been able to purchase is a part of our rising standard of living. It also explains the apparent inconsistency between the very consistent relationship between personal consumer expenditures for medical care and total personal consumer expenditures on the one hand and the sharp decline in the percentage of a week's wages required in 1954 to purchase the amount (11 office calls, five days in a hospital) of medical care that would have required a whole week's wages in the base period 1935-1939. In general, a fixed unit of medical service now costs about half of a week's wages, but the people are buying many more units than in 1935.

Table 9.—*Percentage of One Week's Wages in 1947-1949 and 1950-1954 Required to Purchase the Amount of Medical Care and Other Items That Could Be Purchased with One Week's Wages in 1935-1939*

	1947-1949		1950		1951		1952		1953		1954	
(1)	Average Price Index (2)	% One Week's Wages (Col. 2 ÷ 2.36*) (3)	Average Price Index (4)	% One Week's Wages (Col. 4 ÷ 2.65*) (5)	Average Price Index (6)	% One Week's Wages (Col. 6 ÷ 2.89*) (7)	Average Price Index (8)	% One Week's Wages (Col.8 ÷ 3.03*) (9)	Average Price Index (10)	% One Week's Wages (Col. 10 ÷ 3.20*) (11)	Average Price Index (12)	% One Week's Wages (Col. 12 ÷ 3.20*) (13)
Medical care and drugs	**138.9**	**59%**	**147.9**	**56%**	**155.0**	**54%**	**163.3**	**54%**	**168.5**	**53%**	**173.9**	**54%**
A. Physicians' fees	134.5	57	140.0	53	145.2	50	151.5	50	155.7	49	160.3	50
1. General practitioners' fees	134.4	57	139.8	53	145.2	50	151.7	50	156.0	49	161.1	50
(a) Office visit	135.8	58	140.9	53	146.0	51	151.7	50	157.2	49	163.5	51
(b) House visit	128.4	54	133.9	51	138.3	48	142.3	47	145.7	46	148.8	46
(c) Obstetric case	150.9	64	157.3	59	167.3	58	184.8	61	189.2	59	198.0	62
2. Surgeons' and specialists' fees	134.5	57	140.6	53	144.3	50	149.7	49	153.2	48	154.9	48
(a) Appendectomy, adult	131.8	56	137.4	52	141.6	49	147.4	49	150.3	47	151.4	47
(b) Tonsillectomy, child	137.4	58	144.0	54	147.2	51	152.4	50	156.8	49	160.0	50
B. Hospital rates	205.4	87	235.3	89	260.7	90	285.6	94	304.5	95	322.1	101
Consumer Price Index	**167.2**	**71**	**171.9**	**65**	**185.6**	**64**	**189.8**	**63**	**191.3**	**60**	**191.9**	**60**
Other Items												
A. Food	202.0	86	204.5	77	227.4	79	231.5	76	227.9	71	227.5	71
B. Rent	120.4	51	131.0	49	136.2	47	141.9	47	149.4	47	154.7	48
C. Transportation	144.6	61	162.2	61	173.2	60	184.1	61	187.5	59	185.1	58
D. Personal care	174.2	74	176.6	67	192.5	67	194.9	64	196.5	61	197.5	62
E. Recreation and tobacco	156.2	66	163.8	62	168.5	58	172.6	57	.....	..	.....	..
Reading and recreation	.....	..	.....	..	.....	..	.....	..	168.7	53	167.1	52
Motion picture admissions	167.6	71	170.3	64	172.8	60	174.2	57	182.7	57	194.4	61
F. Furniture	212.3	90	215.7	81	236.4	82	231.3	76	230.2	72	228.1	71
G. Men's street shoes	224.0	95	236.1	89	269.4	93	265.4	88	265.2	83	268.4	84
H. Women's cotton house dresses	291.7	124	271.5	102	282.5	98	275.0	91	276.7	86	276.1	86

Sources: Tables 7 and 8 and U. S. Bureau of Labor Statistics Bulletin 916, and Monthly Labor Review 78: 4, table C-3 (April) 1955. See also chart VI.

* This is the ratio appearing on page 124 of the text, obtained by dividing the average week's wages for the years subsequent to 1935-1939 by the average week's wages ($22.42) for that base period.

INCOMES OF PHYSICIANS

We have noted the stability during the quarter century of the percentage of personal consumer expenditures going for medical care items—with some increase since World War II when the number of births climbed rapidly—the slower rise in the indexes of physicians' fees than in the entire Consumer Price Index since 1935, and the considerable increase in the output per physician. The latter two factors tend to counterbalance. Income, of course, involves unit price times quantity sold. The lag in medical fees has been counterbalanced by the increase in output per physician. It is not surprising, therefore, to find that the incomes of physicians, on the average, have just about kept pace during the 25-year period with the increase in the earnings of all gainfully employed persons. This fact needs to be stressed. A chart in an advertisement by a well-known book publisher appeared in many newspapers and magazines during March, 1955. This chart seemed to imply that physicians' incomes since 1940 have increased, on the average, more rapidly than those of persons in certain selected occupations. Vague references were made to supporting data for 1940 published by the Department of Commerce, but we know of no comprehensive study of physicians' incomes for that year. Furthermore, the war in Europe was well underway in 1940, thereby eliminating that year as an acceptable base period.

Our general conclusions on physicians' incomes, presented also in chart VII, are taken directly and specifically from the *Survey of Current Business*, published monthly by the Department of Commerce. There is nothing vague about our source. The incomes of physicians in 1949 were, on the average, 108% higher than in 1929, whereas for the average earnings of wage and salary workers as well as individual business and professional workers an increase of 109% was recorded. Between 1949 and 1951 the increases were 13% and 15%.

"In the 20-year period since 1929, the average net income of all civilian physicians more than doubled, but this relative increase was practically identical with that for all earners in the general population over the same period. . . . During the same period, all earners in the general population (wage and salary workers, as well as independent business and professional workers) recorded almost the identical relative increase (109 as compared with 108 percent) as all physicians" (July, 1951, pages 9 and 10).

". . . 1949 to 1951. Physicians' incomes rose 13 percent over the period. . . . These increases in professional incomes since 1949 should be considered against the background of the general rise in money incomes and prices. From 1949 to 1951 there were increases of about 15 percent in both the over-all average earnings of employees and proprietors . . ." (July, 1952, page 5).

Since the patients and potential patients of American physicians include all the gainfully employed and their families, the proper basis of comparison, as the second quote from the *Survey of Current Business* states so clearly, is the entire body of gainfully employed people. Moreover, the reason for comparing the incomes of physicians in 1949 with those in 1929 is simply that, in the opinion of the statisticians of the Department of Commerce, there was no benchmark study of physicians' incomes in 1940 but there was one in 1929.

The surveys of physicians' income in 1949 and 1951, conducted by the Office of Business Economics of the Department of Commerce, differed in one important respect. The 1949 survey was based upon a very large sample, approximately 30,000 replies, whereas the 1951 survey was based upon fewer than 1,000 responses; also, the percentage of physicians responding was far lower in the 1951 survey than in the 1949. Although the Department of Commerce may undertake another survey of physicians' incomes in the near future, they have made no survey for the years since 1951. The long-time close relationship, 1929-1951, between the percentage increase in physicians' incomes and in the incomes of the gainfully employed suggests that this relationship would have held in 1952 and 1953. If that be true, we can conclude that physicians' incomes during the quarter century under study have kept pace with the incomes of their patients. More generally, throughout this quarter century the economic position of physicians has not changed in reference to the economic position of their patients, the American people, despite the afore-mentioned changes in personal consumer expenditures for medical care, in the indexes of medical care prices in relation to the entire Consumer Price Index, and the sharp increase in the output per physician. The physicians have been fair in the economic aspects of medical practice during this quarter century, and the people have been fair to their physicians. Thus physicians are still traveling up the center of the inflationary highway. We shall leave to others the task of drawing conclusions of this type regarding the economic position of dentists, the suppliers of drugs and sundries, hospital services, and the groups supplying the commodities and services grouped in our tables under "All Other Medical Care."

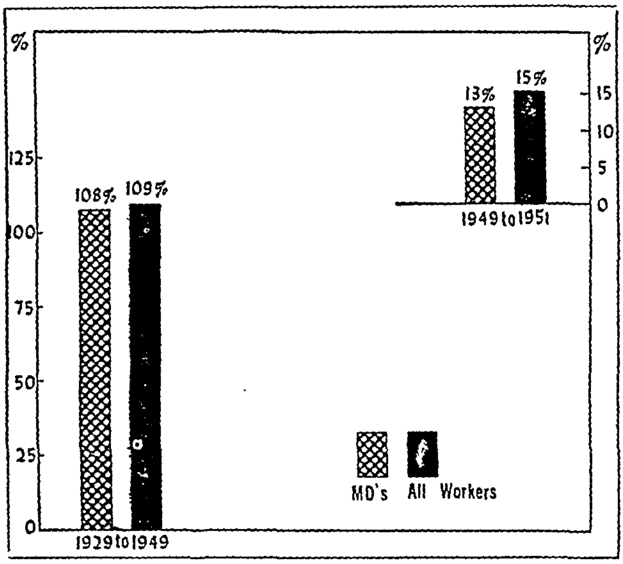

Chart VII.—Percentage increases in average incomes of physicians and of their patients. Source: U. S. Department of Commerce.

Conclusions

In attempting to describe the economic position of medical care during this quarter century, 13 tables, 8 charts, and many definitions have been employed. We have tried to answer our 10 questions set forth at the start of this discussion. The first question referred to the highlights of the expansion in the American economy during the quarter century. While the population was increasing from 122 million in 1929 to 158 million in 1953, the gross national product increased from 104 billion to 365 billion dollars (see appendix). In this national economic aggregate, government purchases of goods and services rose from 8% of the total to 23.5%. The estimated gain in physical output per capita was 57%. The dynamic character of the American economy during this quarter century was manifest not only in the changes of the types and kinds of medical care purchased by consumers but in practically all the commodities and services purchased by consumers. Perhaps the most outstanding ecc nomic change in medical care resulted from the phenomenal in crease in the number of births, an increase of 1,200,000 "bundle of joy" after World War II. This increase means that a di minishing portion of medical care expenditures is for diseas and trauma, for pregnancy is certainly not a disease. Since th text comments on these changes during the quarter centur were, at best, only a summary, no attempt will be made her to summarize them. The next 3 of the 10 questions dealt wit definitions and, accordingly, cannot be a part of the conclusion

The study has been largely limited to the private part of ou economy, what we spend as consumers and not what we spen as taxpayers. But the economic gains of this quarter centu must be tempered by a recognition of the rising national de and the additional burden placed upon the next generation b our failure to prepay the full cost of our social security pension Restricting this discussion to the private part of the econon has enabled us to avoid the puzzling questions about the mec cal care expenditures of the Department of Defense and of th Veterans Administration for the medical care of persons wi service-connected disabilities and about other similar public e *penditures, such as the desirability of adding federal farm su sidies to the expenditures for food.* It was suggested that a balan sheet of the assets and liabilities of the American people, addition to an income statement, would have enabled us properly separate and treat the private and public items, and appraise the economic gains of the quarter century.

While personal consumer expenditures were rising from billion to 230 billion dollars during the quarter century, the for medical care rose from 2.9 billion to 10.0 billion dolla Personal consumer expenditures for food, which have continu to be the largest item in the consumer budget, rose from 24.7 to 31.2% of the grand total, whereas the percentage spent f medical care ranged from 3.72 in 1929, to 3.99 in 1930, a to 4.35 in 1953. The rather steady increase in this percenta since 1945, from 4.14 to 4.35, has been due in a large mea ure to the increase in the number of births, the exceedin strong demand for the medical care of preschool children, t sharp increases in labor and other costs of operating our volu tary hospital system, and the large and persistent increase the overhead cost of operating our voluntary health insurar system; the last item is not a medical care item per se. T percentage of total personal consumer expenditures made f the services of physicians has ranged during the quarter centu narrowly from 1.1 to 1.3. The physicians' share of the medi *care dollar declined from 33 cents to 28 cents; for the servi* of dentists the decline was from 16 cents to less than 10 cen On the other hand, the hospital share of the medical care dol rose rapidly from 14 cents to 26 cents. The hospitals were mc exposed to inflation. The phenomenal health progress achiev during this quarter century probably would have been imp sible without the increasing use of hospitals.

The Consumer Price Index of the Bureau of Labor Statisti was 92% higher in 1954 than in the old base period, 1935-193 Partly because most breakdowns of this Index were not ava able for the first six years of the quarter century, the pri indexes and subindexes for 1954 were presented; thus a fif of a century of prices was reviewed. The index of the maj medical category, medical care and drugs, rose 74%; the su category for physicians' fees rose 60% (for obstetric fees, 98% and for hospital room rates, 222%. The new base period, 194 1949, is a poor base period because the postwar inflationa forces had not run their course until 1952-1954; the latter thr years would have been a better selection for a postwar ba period. It is true, however, that the subindexes for physician fees on either base period indicate that physicians' fees sinc 1947-1949 have risen more rapidly than the entire Consum Price Index, but not for the longer period.

In measuring changes in ability to pay, the comparative in creases in the average weekly earnings of production worker and in the various consumer price indexes indicated that a give quantity of medical care—11 office calls, 5 days of hospitali zation—that would have required an entire week's wages i

1935-1939 required only about one-half of a week's wages in 1954; a cross section of all commodities and services priced in the Consumer Price Index would have cost only 60% of a week's wages in 1954. The percentage of a week's wages in 1954 required for other items were: 54 for medical care and drugs; 50 for physicians' fees; 101 for hospital room rates; 48 for rent; 84 for men's street shoes; and 86 for women's cotton house dresses. The ability to pay, as measured in this fashion, has more than kept pace with the rises in the prices of these consumer items and suggests that there have been increases in the quantity of medical care purchased.

Indexes of output were computed in the traditional manner by dividing the index of personal consumer expenditures by the corresponding index of prices. Some of the resulting 1953 production indexes (1935-1939 equals 1.0) were: total medical, 2.3; physicians' services, 2.2; dentists' services, 1.6; and hospital services, 1.9. Considering the increase in the number of physicians and dentists, there were gains of about 69% in the output per physician and 33% in the output per dentist. These increases in the volume have helped to offset the failure of fees to rise as rapidly as the prices of all commodities and services since 1935-1939. Physicians have unquestionably helped to increase the technological efficiency of their patients. Despite implications to the contrary by some writers, data published by the Department of Commerce indicate that the average income (before taxes) of physicians has increased at almost exactly the same rate as the average income of all gainfully employed people since 1929. Relative to the incomes of his patients, the economic position of the physician has not changed.

Bearing in mind the tremendous changes in the patterns of consumer expenditures during this quarter century, it is clear that the medical care industry—if we may be forgiven for calling it an industry—has continued to occupy about the same economic position as it did a quarter century ago. Meanwhile the expectation of life has risen from 57 years to more than 68 years. In terms of quantity and quality of output it is quite possible that this is our most efficient industry. Social progress may be described but not precisely defined. In its essence, it is more and better years in which to enjoy and grow with more and better goods and services. In this sense, the quarter century under observation has probably been the greatest in the history of mankind. The considerable contribution of medical care to this dynamic quarter century has been achieved at reasonable cost to the patient.

Senile Osteoporosis.—[This] is a physiological condition in which bone production is less than bone resorption. It appears to be due to deficient osteoblast stimulation. Calcium metabolism and serum levels of calcium, phosphorus, and alkaline phosphatase are normal; urine calcium tends to be increased and is an index of the degree of activity of the process. One of the main etiological factors is considered to be a relative preponderance of antianabolic over anabolic hormones. The efficacy of therapy can theoretically be assessed by radiological changes, symptomatic improvement, repeated biopsies, studies with radioisotopes of calcium, or by calcium balance studies. Only the last has been proved to be a useful index at the present time. Therapy should consist of analgesia and rapid mobilization in instances in which there has been acute symptomatic fracture. Continued mobility and muscle-strengthening exercises should be obtained in all cases. Long-term maintenance is recommended on a high-protein diet with up to 1,000 mg. of calcium per day, with B vitamins and ascorbic acid if desired, but without vitamin D. Women are maintained on estrogen, with testosterone being used initially and up to the point of masculinization; men are maintained on androgen, with estrogen given initially and until femininization becomes disturbing. Continued combined androgen and estrogen therapy may be desirable in both men and women when osteoporosis is severe and general debility is present. Prolonged immobilization is to be avoided in patients with osteoporosis and in elderly patients in general. —M. Moldawer, M.D., Senile Osteoporosis, *A. M. A. Archives of Internal Medicine,* August, 1955.

LAW DEPARTMENT

MEDICOLEGAL ABSTRACT

Privileged Communications: Names of Physician's Patients Treated in Hospital.—The Commissioner of Internal Revenue obtained an order directing the Albert Lindley Lee Memorial Hospital to turn over to the Office of Internal Revenue the names and addresses of all of Dr. Cincotta's patients who were treated in the hospital during the years 1946 to 1950. The purpose of the order was to aid the Office of Internal Revenue in an investigation of the tax returns of Dr. Cincotta. The hospital moved to dismiss the order on the ground that a New York statute extends to physicians the privilege of not having to disclose facts revealed to them in confidence by patients. The hospital maintained that it was entitled to the benefit of this statute. The order to show cause why this ruling should not be vacated was heard by the United States district court, N. D., New York.

The statute, said the court, was designed to protect disclosures made to a doctor when he is acting in a professional capacity, but the privilege extends only to personal facts not generally known to the public that might bring the patient humiliation, embarrassment, or disgrace. The information sought by the Office of Internal Revenue did not come within the scope of the privilege statute. Three facts were sought; the names of the patients, their addresses, and the fact that they were treated by Dr. Cincotta. Such facts could not be considered either as having been revealed in confidence or as being personal facts not generally known to others. The court therefore sustained the order requiring the hospital to furnish the requested information. In re *Albert Lindley Lee Memorial Hospital, 115 F. Supp. 643 (U. S., 1953).*

Workmen's Compensation Acts: Dermatitis Venenata as Accidental Injury.—An action for an award was taken under the Workmen's Compensation Act for injuries sustained from an accident occurring at work. When an award was allowed by the industrial commission, the employer appealed to the Supreme Court of Mississippi. The claimant worked in the defendant's bakery and, for the purpose of handling hot pans, wore a baker's mitten, called Jomac. Subsequently a rash developed on his hands and arms, which his doctor diagnosed as dermatitis venenata. After a temporary layoff from work the trouble disappeared, but upon his return to work the disease immediately reappeared. Allergy tests with the mitten were then performed, and the results showed that the claimant had contracted the disease because of an allergy to either the material or some chemical in the mitten. In bringing a suit for workmen's compensation the claimant contended that he had suffered an accidental injury, not an occupational disease.

The Supreme Court said that an accident, as generally understood, is an unexpected event. To this extent the contracting of dermatitis venenata was an accident, since it was the unexpected result of wearing the baker's mitten. Under the workmen's compensation law a compensable accident need not happen suddenly, nor as a result of the application of an external force. All that need be shown is that a causal factor, which existed or took place within a reasonably determinable period of time, brought about the accidental injury and that the causal factor arose out of the scope of the employment. The Supreme Court found that this requirement was met by the claimant, since the facts indicated that the injury was directly caused by the contact with the mitten, which contact took place within the scope of his employment and during a reasonably determinable period of time. Continuing, the Supreme Court said that an occupational disease is one that is commonly known to be a concomitant of a particular occupation. The claimant's dermatitis venenata was not a disease concomitant with the bakery occupation because the average baker would not contract the disease by wearing a mitten like the one worn by the claimant. The claimant contracted the disease only because of a peculiar susceptibility to it. Accordingly, the award in favor of the claimant was affirmed. *Hardin's Bakeries v. Ranager, 64 So. 2d 705 (Miss., 1953).*

MEDICAL NEWS

CALIFORNIA

Postgraduate Conferences.—Stanford University School of Medicine announces postgraduate conferences, "Important Recent Advances in Treatment in General Practice" (Sept. 12-14, $75) and "Recent Advances in General Surgery and Surgical Anatomy" (Sept. 12-16, $125). Applications for registration should be made to the Office of the Dean, Stanford University School of Medicine, 2398 Sacramento St., San Francisco 15.

Symposiums on the Campus.—Three medical symposiums, sponsored by the Orange County and Riverside County Medical Associations and the San Bernardino County Medical Society, the School of Medicine at the University of California at Los Angeles, and the University of California Extension, will be presented this fall on the Riverside campus of the university: "What's New in Medicine," Sept. 21, 1-9:15 p. m.; "Obstetrics," Sept. 28, 2:30-9:30 p. m.; and "Fevers of Unexplained Origin," Oct. 5, 9 a. m.-5 p. m. Fees are $17.50 for one symposium, or $50 for all three. Application or requests for information should be made to: Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, University of California Medical Center, Los Angeles 24, or telephone GRanite 8-9711 or BRadshaw 2-8911, extension 202.

CONNECTICUT

Personal.—Dr. Edward J. Lynch retired recently as superintendent and medical director of Laurel Heights State Tuberculosis Sanatorium after 38 years of service.——Dr. William H. Upson, Suffield, was recently elected president of the Connecticut Public Health Association. Dr. Edward M. Cohart, New Haven, was named president-elect.

Floods Cancel Industrial Health Symposium.—The Industrial Health Symposium scheduled for Sept. 22 at the United States Rubber Company, Footwear Division, in Naugatuck (The Journal, Aug. 13, 1955, page 1375), has been canceled because of flood conditions. The symposium had been planned by the committee on industrial health, Connecticut State Medical Society.

Seminar in Neurology.—Dr. Joseph A. Beauchemin, Middletown, director, Connecticut Postgraduate Seminar in Psychiatry and Neurology, announces that sessions in clinical neurology, neuroroentgenology, electroencephalography, neuroanatomy, neurophysiology, and neuropathology will be held on Mondays and Wednesdays, Sept. 25-Dec. 5, from 3 to 9 p. m. at Yale University School of Medicine, New Haven. There are no fees.

GEORGIA

Society News.—The Georgia Society of Ophthalmology and Otolaryngology recently elected the following officers: Dr. Alton V. Hallum, Atlanta, president; Dr. William L. Barton, Macon, vice-president; and Dr. Walter P. Rhyne, Albany, secretary-treasurer.——At the annual meeting of the Georgia Society of Anesthesiologists in Augusta, Drs. Stuart C. Cullen, Iowa City, and David A. Davis, Chapel Hill, N. C., were guest speakers. The following officers were elected for the coming year: chairman, Dr. William H. Galvin, Emory University; secretary-treasurer, Dr. Lester Rumble Jr., Atlanta; delegate, Dr. Edwin L. Rushia, Augusta; and alternate, Dr. Hayward S. Phillips, Augusta.——The Georgia Diabetes Association plans to hold at least one large clinical meeting each year at the time of the convention of the state medical association. A semiannual meeting is planned for this September in Atlanta. Physicians who join before the September meeting will be considered charter members. Application for membership should be submitted to any of the following officers: Dr. Christopher J. McLoughlin, president, 1010 Medical Arts Bldg., Atlanta; Dr. George R. Dillinger, vice-president, 314 S. Broad St., Thomasville; or Dr. Alex T. Murphey, secretary-treasurer, 1719 Walton Way, Augusta.

IDAHO

General Practice Meeting in Boise.—The Idaho Academy of General Practice will hold its annual meeting at the Boise Hotel in Boise, Sept. 23-24, in conjunction with the cancer society meeting. Guest speakers will include the following physicians from the University of Utah School of Medicine, Salt Lake City: Emil G. Holstrom, "Differential Diagnosis of Lesions of Cervix and Vulva"; L. Paul Rasmussen, "The Premature, Care of the Newborn and Feeding Problems in Infancy"; and Russell M. Nelson, "Surgical Approach to the Problem of Advanced Malignancy." Dr. Emory L. Soule of St. Anthony is program chairman. On Saturday there will be a football game between the University of Idaho and University of Utah at Boise.

ILLINOIS

Clinics for Crippled Children.—The University of Illinois division of services for crippled children has scheduled the following clinics to which any private physician may refer or bring children for examination or consultative services:

Sept. 13, Peoria, Children's Hospital; East St. Louis, St. Mary's Hospital.
Sept. 14, Joliet, Will County Tuberculosis Sanatorium (Sunny Hill Sanatorium).
Sept. 15, Anna, City Hospital; Rosiclare, Y.M.C.A. Building.
Sept. 16, Evanston, St. Francis Hospital.
Sept. 20, Centralia, Recreation Center.
Sept. 21, Evergreen Park, Little Company of Mary Hospital; Jacksonville, Our Saviour's Hospital.
Sept. 22, Rockford, St. Anthonys Hospital; Bloomington, St. Joseph's Hospital; Chester, Lutheran School.
Sept. 23, Chicago Heights (rheumatic fever), St. James Hospital.
Sept. 27, Peoria, Children's Hospital; Effingham (rheumatic fever), St. Anthony's Emergency Hospital.
Sept. 28, Springfield (cerebral palsy), Memorial Hospital; Aurora, Copley Memorial Hospital.

Chicago

Volunteer Medical Company.—A meeting of the Volunteer Medical Company 9-20, U. S. Naval Reserve, will be held at the U. S. Veterans Research Hospital, Room A-302, 333 E. Huron St. (MOhawk 4-6600), 8:15 p. m., Sept. 13. "Kidney Function in Health and Disease" (movie) will be presented by Drs. Arthur C. Corcoran, Cleveland, Don Carlos Hines, Indianapolis, and Irvine H. Page, Cleveland.

Fund to Help Disabled Practitioners.—The executive director of the Dr. Adolph Gehrmann fund announces that funds are available for sick and disabled practicing physicians who are in need of financial assistance in their attempt to regain health and for the widow of a physician for a period of not greater than one year after the death of her husband. The fund cannot be used as an old age pension for physicians but must help, adhering to the statement in the will, "in his or their attempt to regain health." Applications for assistance should be made to Mr. James Brown IV, Executive Director of the Chicago Community Trust, 10 S. LaSalle St., Chicago 3.

KENTUCKY

University News.—Dr. William C. Adams, Ridgewood, N. J., has been appointed instructor in child health at the University of Louisville School of Medicine.——Ten class reunions (fifth year classes, 1905-1950) of the University of Louisville School of Medicine will be held in Louisville during the annual meeting of the Kentucky State Medical Association Sept. 27-29. The reunion dinners will follow a cocktail party given by the medical school faculty in the Brown Hotel at 5 p. m. Thursday. It is

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

planned to have class reunions of Louisville medical school graduates in conjunction with the Kentucky State Medical Association annual meeting each year in the future. In 1956, the 10 classes will start with the year 1906 and continue with each consecutive fifth year through 1951.

State Medical Meeting in Louisville.—The Kentucky State Medical Association will hold its annual meeting (the Jerman Baker Memorial Meeting) Sept. 27-29 in the Columbia Auditorium, Louisville, where welcoming remarks will be made by Dr. Gradie R. Rowntree, Louisville, president, Jefferson County Medical Society. Dr. Clyde C. Sparks, Ashland, president of the state society, will deliver the presidential address at 10 a. m. Dr. Elmer Hess, Erie, Pa., President of the American Medical Association, will address the president's luncheon Wednesday, 11:45 a. m., on "What the Physician Owes His Patient." Presentations by out-of-state speakers during the scientific sessions will include:

Variations in the Disease, Pulmonary Tuberculosis, Edgar M. Medlar, Ithaca, N. Y.
Urologic Pathology of Interest to the General Practitioner, Frank M. Woods, Miami, Fla.
Role of the Medical Department in Today's Navy, Adm. Ocie B. Morrison Jr., Portsmouth, Va.
Convulsive Seizures in Infancy and Childhood, James G. Hughes, Memphis, Tenn.
Adrenal Cortical Hormones as Therapeutic Agents, Albert Segaloff, New Orleans.
The Changing World for Medicine, Austin Smith, Chicago, Editor of THE JOURNAL.
Effect of Anesthetic Agents on the Heart, David A. Davis, Chapel Hill, N. C.
Gastric Ulcer—Criteria for Determining Method of Treatment, Harold J. Kullman, Dearborn, Mich.
A Case for Social Medicine, Peter L. Scardino, Savannah, Ga.

Thursday afternoon will be devoted to the programs of nine specialty groups. The morning and afternoon sessions on Tuesday and Wednesday and the morning session on Thursday will begin with color television, eight hours in all being devoted to this medium.

MONTANA

Society News.—The Montana Society of Pathologists recently elected Dr. Edwin C. Segard, Billings, president; and Dr. John A. Newman, Butte, secretary.

Personal.—Dr. Sidney A. Cooney, Helena, a past-president of the Montana Medical Association, was honored by the Lewis & Clark Medical Society at a testimonial banquet for his approaching 50th anniversary in the practice of medicine. Dr. Edward S. Murphy, Missoula, served as master of ceremonies, and testimonials were presented by Dr. James M. Flinn, Helena, Dr. Edmund A. Welden, Lewistown, Dr. R. O. Lewis, Helena, president of the society, and Mr. L. R. Hegland, executive secretary of the Montana Medical Association. Dr. Cooney, who has long been active and interested in public health and medical and athletic affairs, has served as a member of the board of medical examiners for 35 years and as its secretary for 24 years.

State Medical Meeting in Bozeman.—The 77th annual meeting of the Montana Medical Association will convene in the Student Union Building on the campus of Montana State College, Bozeman, Sept. 15-18. Scientific sessions will open at 9 a. m. with an address of welcome by Dr. Francis I. Sabo, Bozeman, president, Gallatin County Medical Society, to which response will be made by Dr. John J. Malee, Anaconda, president, Montana Medical Association. Guest speakers and their first presentations will include:

Michael L. Mason, Chicago, Management of Burns.
Daniel C. Darrow, Kansas City, Kan., Pathogenesis of Metabolic Alkalosis.
Benjamin Felson, Cincinnati, Recent Advances in Roentgen Contrast Visualization.
Leonard A. Lang, Minneapolis, Deflexion Attitudes.
Robert J. Bolt, Ann Arbor, Mich., Newer Measures for Evaluating Gastric Function and Early Detection of Gastric Carcinoma.
Jerome A. Hilger, St. Paul, Bronchologic Methods in Pulmonary Diagnosis.
Sture A. M. Johnson, Madison, Wis., Diagnosis and Treatment of Some Common Skin Disorders.
Merrill J. Reeh, Portland, Ore., The Glaucoma Problem.

A clinicopathological conference will be presented Thursday at 1:45 p. m., with Dr. Paul J. Gans, Lewistown, as moderator. Dr. George T. R. Fahlund, Great Falls, will serve as moderator for a symposium on trauma Friday, 1:15 p. m. Dr. David Gregory, Glasgow, will moderate a clinicopathological conference Saturday at 1:15 p. m. The annual reception will precede the banquet Thursday, 8. p. m., at which Dr. Raymond E. Benson, Billings, will serve as toastmaster and the Hon. John C. Vivian, Denver, will speak on "The State of the Nation." The Gallatin County Medical Society will be host to all members and guests of the association at a dance and buffet supper at Gallatin Gateway Inn, Friday, 8:30 p. m. The Montana Physicians' Service will be host at a friendship hour and cocktail party Saturday, 6-8 p. m., at the Baxter Hotel. The woman's auxiliary will meet simultaneously with the parent organization. At the auxiliary luncheon meeting Thursday, 12:30 p. m., Dr. George W. Setzer, Malta, president-elect of the Montana Medical Association, will deliver greetings.

NEW YORK

Nutrition Workshop.—A "Nutrition Workshop" is being planned by the Medical Society of the County of Monroe, with the cosponsorship of the Rochester-Monroe County chapter of the American Red Cross, Rochester-Monroe County Nutrition Committee, and the Rochester Dietetic Association, for Sept. 22 at the Rochester Gas and Electric Company's auditorium. There will be afternoon discussion groups on diabetes, arteriosclerosis, heart disease, and obesity. In the evening, Dr. James H. Hundley, chief of the laboratory of biochemistry and nutrition in the National Institute of Arthritis and Metabolic Disease, Bethesda, Md., will talk on nutrition.

New York City

Workshop in Medical Writing.—The Washington Square Writing Center at New York University's division of general education will present a "Workshop in Writing for Medical and Scientific Journals" and "Techniques of Practical Writing" as part of its fall program for adult students, who may enroll for courses from Sept. 12 to 30. Information can be obtained from the Division of General Education, New York University, 1 Washington Square North, New York 3.

Research Expedition to Amazon.—Dr. Hans H. Neumann, research assistant in dentistry, and Nicholas A. DiSalvo, Ph.D., assistant professor of physiology, Columbia University College of Physicians and Surgeons, have flown to the upper Amazon valley, where they will lead a six week expedition to study the diet of isolated Indian tribes in connection with dental caries and will collect data from a biophysical rather than from a biochemical angle. Dr. Neumann initiated his study in 1939. The present expedition will be a continuation of observations he has made around the globe in such places as Polynesia and India. South American scientists are expected to join the expedition.

OHIO

Grants in Hypertension and Cancer Research.—Research grants of more than $90,000, recently awarded to Dr. Harry Goldblatt, director of laboratories, and Erwin Haas, Ph.D., biochemist, for continuation of research on high blood pressure and cancer at Mount Sinai Hospital, Cleveland, include $20,000 from the Louis D. Beaumont Trust and $73,000 from the U. S. Public Health Service.

OREGON

Personal.—Dr. Arthur J. O'Toole, Portland, has been named coroner for Multnomah County to succeed the late Dr. F. Floyd South. Dr. O'Toole serves on the staffs at Portland Sanitarium and Hospital and Providence and St. Vincent's hospitals, Portland, and will continue in private practice.——Dr. Adolph Weinzirl, head, department of public health and preventive medicine, University of Oregon Medical School, Portland, has been appointed by Governor Paul Patterson to serve on a nine-man interim committee to study sex crime prevention. The committee also will consider the cause and prevention of sex deviation and abnormalities and submit their recommendations to the governor and the legislature before the next session convenes.

State Medical Meeting in Portland.—The 81st annual session of the Oregon State Medical Society and the 8th annual meeting of the Oregon Academy of General Practice will be held in conjunction with the 22nd Sommer Memorial Lectures, Sept. 27-30 at the Masonic Temple, Portland. The Sommer memorial guest lecturers will present the following lectures:

- Cyrus C. Sturgis, professor of medicine, University of Michigan Medical School, Ann Arbor, (1) Etiology and Treatment of Hematologic Disorders. (2) Diagnosis and Management of Toxic Thyroid States and Cancer of the Gland. (3) Nature and Treatment of Various Forms of Leukemia and Allied Disorders.
- George T. Pack, clinical professor of surgery, New York Medical College, New York, (1) Tumors of the Soft Somatic Tissues. (2) Moles and Melanoma. (3) Surgical Treatment of Primary and Secondary Liver Tumors.
- Edgar A. Pask, professor of anesthetics, University of Durham Medical School, Newcastle Upon Tyne, England, (1) What is the Anesthesiologist Seeking To Do? (2) Jimmy Brown's Ordinary Operation: Part of the Surgical Adventures of One Patient. (3) Ordinary Troubles with Anaesthetics.

The guest lecturer of the Oregon Academy of General Practice, Dr. Alec M. Agnew, professor of obstetrics and gynecology, University of British Columbia Faculty of Medicine, Vancouver, B. C., Canada, will discuss "Problems in Stage O Carcinoma of the Cervix," "Obstetrical Emergencies," and "Indications for Hysterectomy."

PENNSYLVANIA

Rush Award Winners.—Winners of the Benjamin Rush award, presented each year by the Medical Society of the State of Pennsylvania to laymen contributing outstanding service to their communities in the field of public health, have been announced as Stanley Franklin Fink, Ed.D., Reading, and the Rotary Club of Allentown. Dr. Fink, principal of Southwest Jr. High School, Reading, was selected chiefly for his work in collecting funds for the treatment of children with cerebral palsy. He has also been director of Reading's first recreational center; chairman of the Free Eyeglass Fund for School Children; board member of the Pennsylvania Society for Crippled Children and Adults, Reading chapter president and a national officer of the American Business Clubs, and he now becomes the first two-time winner of the award in Berks County. The Rotary Club of Allentown has taken leadership in a variety of programs dealing with health, including a cerebral palsy nursing school, a preschool age hearing clinic, a health lodge at the Boy Scouts' Camp Trexler, aid to crippled children at camp, equipment for retarded children, and nursing scholarships. The two state winners will be presented with bronze medallions at the state dinner during the 105th annual meeting of the society in Pittsburgh on Sept. 20.

TEXAS

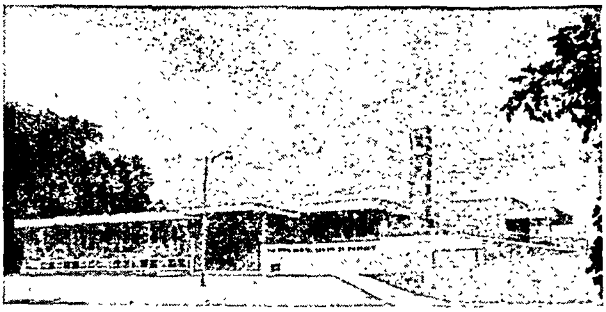
Industrial Health Conference.—The eighth annual Industrial Health Conference will be held Sept. 22-24 at the Shamrock-Hilton Hotel, Houston. The conference will open with official greetings by Roy A. Hofheinz, mayor, city of Houston. A symposium on agricultural health problems is scheduled for Thursday afternoon. Dr. Lemuel C. McGee, medical director, Hercules Powder Company, Wilmington, Del., will discuss "Problems of Agricultural Chemicals"; W. W. Armstead, dean, school of veterinary medicine, Texas A & M College, College Station, will consider "Diseases Transmittible to Man from Animals"; and Dr. H. Herman Young, Mayo Clinic, Rochester, Minn., will have as his topic "Accidents in Agricultural Operations." The Friday morning session will open with a symposium on rehabilitation, in which "Development of Rehabilitation Facilities" will be discussed by Dr. Robert L. Bennett, director, Georgia Warm Springs Foundation Clinic, and "Financial Aspects of Rehabilitation" by Mr. Standwood L. Hanson, vice-president, claims department, Liberty Mutual Insurance Company, Boston. The luncheon address will be delivered by Cyril L. Comar, PhD., of the Oak Ridge (Tenn.) Institute of Nuclear Studies. Dr. William P. Shepard, New York, will preside at the panel discussion Friday afternoon, presented by the A. M. A. Council on Industrial Health, of which he is Chairman. "Practical Applications of Current Research" will be considered at 2 p. m. and "Problems of Health in an Industrial Society" at 3 p. m. On Saturday morning Dr. Henry A. Holle, Austin, commissioner, state department of health, will speak on the industrial nurse's contribution to public health and Dr. Bennett on rehabilitation after injury. The afternoon will be devoted to a tour of the Light House for the Blind.

WASHINGTON

Obstetricians Meeting in Seattle.—The fall meeting of the Washington State Obstetrical Association will be held at the Washington Athletic Club, Seattle, Sept. 24. Guest speakers will be (1) Dr. Leroy A. Calkins, professor of obstetrics and gynecology, University of Kansas School of Medicine, Lawrence-Kansas City, whose topics will be "Bregma, Brow and Face, and Transverse Presentation" and "Fetal Mortality," and (2) Dr. Willis E. Brown, professor of obstetrics and gynecology, University of Arkansas School of Medicine, Little Rock, who will discuss "Management of Prolonged Labor" and "Clinical Experience with Eclampsia." Dr. R. Philip Smith of Seattle will be moderator of the noon round-table luncheon. At the banquet, Dr. Richard J. Blandau of the University of Washington School of Medicine will show a film of his work on ovulation.

WISCONSIN

New Headquarters of State Medical Society.—The offices of the State Medical Society of Wisconsin in Madison were transferred in June from 704 E. Gorham St. on Lake Mendota to 330 E. Lakeside St. on Lake Monona. The ground floor, which opens directly onto the lake side of the property, houses the Blue Shield administrative offices, service room, supply room, kitchen, and dining room. The top floor provides space for the reception room, two consultation rooms, a secretary's office, library conference room, offices for administrative purposes, and a council room. The new headquarters afford a large parking area for employees and visiting physicians. It is anticipated that the building will be completed and ready for use about mid-October.



Headquarters of State Medical Society of Wisconsin

Home Therapy Service for Arthritic Patients.—The Wisconsin chapter of the Arthritis and Rheumatism Foundation has announced the establishment of a nursing and physical therapy service for home-bound patients, in cooperation with the Visiting Nurse Association. Services of the unit, which will be operated by a physical therapist from the Visiting Nurse Association, will be available to patients who are referred by their physician. Dr. Edwin C. Welsh, Milwaukee, is in charge of the program. Information may be obtained from the Wisconsin Chapter of the Arthritis and Rheumatism Foundation, 208 E. Wisconsin Ave. (BR 1-4131).

Personal.—Dr. Phillip R. McCanna, Marinette, has accepted an appointment in ophthalmology at the University of Illinois College of Medicine, Chicago.——Dr. James J. Foster, formerly of Madison, is the new medical director of the Milwaukee Cancer Diagnostic Clinic, succeeding Dr. Richard J. Krill, who left the clinic to complete residency training in surgery at Presbyterian Hospital, New York. Dr. Krill plans to return to Milwaukee after completing his training.——Dr. Errol V. Brumbaugh, West Allis health commissioner, and Dr. Fred B. Welch, Janesville health commissioner, have been awarded honorary life memberships in the Wisconsin Association for Public Health.

GENERAL

Meeting of Southern Trudeau Society.—The Southern Trudeau Society will meet at the Brown Hotel, Louisville, Ky., Sept. 21-23. Subjects for discussion include tuberculosis and the general practitioner; problems in chemotherapy; and nontuberculous disease. A Pembine-type consecutive case conference will be presented Thursday evening by a group of Kentucky physicians, with Dr. John S. Harter, Louisville, as chairman.

Association of Nursing Homes.—The annual convention of the American Association of Nursing Homes will meet in the Auditorium, Kansas City, Mo., Sept. 19-21. Physicians who will address the association include Dr. William F. King, Indianapolis; Dr. John M. Whitney, Battle Creek, Mich., luncheon speaker, Tuesday; Dr. John W. Cronin, Washington, D. C., who will address the annual banquet Tuesday, 7 p. m.; and Dr. Edward H. Hashinger, Kansas City, Mo., who will address the luncheon meeting Wednesday.

Course on Venereal Disease.—The 24th Venereal Disease Postgraduate Course for physicians, sponsored by the University of Chicago and the Public Health Service, will be given at the university Sept. 26-30. The course, accredited by the American Academy of General Practice, is designed to acquaint the practitioner with the latest developments in diagnosis, treatment, and management of venereal disease. No tuition will be charged. Applications for admission should be sent to the Section on Dermatology, Department of Medicine, University of Chicago, Chicago 37.

Fellowships for Research in Arthritis.—The Arthritis and Rheumatism Foundation is offering the following research fellowships in the basic sciences related to arthritis: 1. Predoctoral fellowships ($1,500-$3,000 per annum, depending on the family responsibilities of the fellow), tenable for one year with prospect of renewal. 2. Postdoctoral fellowships ($4,000-$6,000 per annum, depending on family responsibilities), tenable for one year with prospect of renewal. 3. Senior fellowships for more experienced investigators ($6,000-$7,500 per annum), tenable for five years. The deadline for applications is Oct. 15. Applications will be reviewed and awards made in January, 1956.

Research Fellowships and Grants.—Applications for awards available July 1, 1956, will be received by the Life Insurance Medical Research Fund as follows: (1) postdoctoral research fellowships, until Oct. 15, 1955, with preference to those who wish to work on cardiovascular function and disease or related fundamental problems (minimum stipend $3,600, with allowances for dependents and necessary travel) and (2) grants to institutions in aid of research on cardiovascular problems, until Nov. 1, 1955. Support is available for physiological, biochemical, and other basic work broadly related to cardiovascular problems as well as for clinical research in this field. Predoctoral fellowships will not be offered by the fund this year. Information may be obtained from the Scientific Director, Life Insurance Medical Research Fund, 345 E. 46th St., New York 17.

Hospital Association Convention.—The 57th annual American Hospital Association convention and the 8th annual Conference of Hospital Auxiliaries will be held in Atlantic City, N. J., Sept. 19-22. Over 100 round-table discussions will supplement the four key general sessions. A postconvention cruise to Bermuda has been planned aboard the S. S. Queen of Bermuda, Sept. 24-30. The cost ($174.30—$245.80) includes room and meals, both aboard ship and in a resort hotel on the island, as well as a special tour of the island. The ship leaves New York City at 3 p. m. Saturday and returns on Friday. Persons who wish to remain on the island another two days may return by air (cost for this trip, $194.05—$229.80). Trip reservations should be sent to Aladdin Travel Service, 220 South State St., Suite 506, Chicago 4.

Frank L. Chance Research Fellowships.—The City of Hope National Medical Center, Duarte, Calif., announces that two Frank L. Chance Research Fellowships (one in hematology and one in medical oncology) will be available this year. Inquiries should be directed to Dr. Howard R. Bierman, scientific director, before Oct. 1. The fellowships were established by the late Mrs. Frank L. Chance in honor of her husband of baseball's famed double-play team, Tinker-to-Evers-to-Chance. Five fellowships are available each year for periods of one to three years. Fellows selected hold an appointment in the Medical Research Institute of the City of Hope Medical Center, with a dual title in one of the hospitals of the center if clinical research is to be done. The annual stipend varies from $3,600 to $5,000. The fellowships were designed to afford special training in the fields in which the City of Hope Medical Center is engaged: (1) tumors and allied diseases, (2) hematology, (3) cardiac disease amenable to surgery, and (4) cardiorespiratory diseases.

Tri-State Obstetric Seminar.—A seminar on obstetrics will be held at the Daytona Plaza Hotel, Daytona Beach, Fla., Sept. 12-14, under the sponsorship of the South Carolina Medical Association, the Medical Association of Georgia, the Florida Medical Association, and the bureaus of maternal and child health of the state health departments of South Carolina, Georgia, and Florida. The Monday program, which will be devoted to pediatrics, will open with a paper on immunization by Dr. Robert B. Lawson, Miami, Fla., after which "Health Supervision of Young Children" will be considered by Dr. Samuel M. Wishik, Pittsburgh. "Major Medical Problems Complicating Pregnancy" will be discussed on Tuesday by Dr. Norman Thornton and "Obstetrical Care in Rural Communities" by Dr. Robert A. Ross, Chapel Hill, N. C. The Wednesday session will include "Toxemia—Recent Advances in Treatment" by Dr. William J. Dieckmann, Chicago; "Afibrogenopenia in Pregnancy" by Dr. Carl P. Huber, Indianapolis; and "Anomalous Products of Pregnancy" by Dr. John L. Parks, Washington, D. C. All physicians are welcome. There is no registration fee.

Meeting on Medicinal Chemistry.—The 128th national meeting of the American Chemical Society will be held at the University of Minnesota, Minneapolis, Sept. 11-16. The fourth annual Symposium on Cancer will be presented Friday. Louis F. Fieser, Ph.D., Belmont, Mass., will preside at the morning session on "Metabolic Conversions of Steroids," which will include the following presentations:

Conversions of Steroids by Microorganisms, Albert Wettstein, Basle, Switzerland.
Biogenesis of Steroid Hormones, Ralph I. Dorfman, Ph.D., Shrewsbury, Mass.
Studies of the Steroid Hormones in Man, Thomas F. Gallagher, Ph.D., New York.

Dr. Charles B. Huggins, Chicago, will preside at the afternoon session on steroids and cancer, when the following presentations will be made:

Inherited Hormonal Mechanisms and Mammary Cancer in Mice, John J. Bittner, Ph.D., Minneapolis.
Endocrine Carcinogenesis, Eric S. Horning, London, England.
Endocrine Control of Neoplasms in Man, Olof H. Pearson, New York.

The Friday sessions will conclude with the chairman's summary by Dr. Huggins and the symposium summary by Dr. Cornelius P. Rhoads, New York.

Roentgen Ray Society.—The 56th annual meeting of the American Roentgen Ray Society will be held at the Palmer House, Chicago, Sept. 20-23. The meeting will be called to order at 8:30 a. m. by Dr. Joshua C. Dickinson, Tampa, Fla., president, after which Lawrence A. Kimpton, Ph.D., chancellor of the University of Chicago, will deliver the address of welcome. Dr. Paul C. Hodges, Chicago, who will be installed as president, will deliver his inaugural address, "Radiology in the Seventh Decade." The Caldwell Lecture, "A New Concept of the Etiology of Duodenal and Gastric Ulcer," will be given at 8:30 p. m. Tuesday by Dr. Lester R. Dragstedt, chairman, department of surgery, University of Chicago, to whom the medal of the society will be presented by Dr. Egbert H. Fell, Chicago. A symposium on gastrointestinal diseases has been scheduled for Wednesday morning and a symposium on supervoltage and megavoltage radiation therapy with various sources for Thursday morning. Some 36 persons will participate in the program by invitation. These include Dr. Carl Wegelius, Stockholm, Sweden; Dr. Charles C. Burkell and Thomas A. Watson, M.B., Saskatoon, Saskatchewan, Canada; and Dr. Ivan H. Smith, London, Ontario, Canada. The annual banquet Thursday evening will be preceded by cocktails at 6:30 p. m.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated:

Area	Aug 20, 1955 Paralytic Type	Aug 20, 1955 Total Cases Reported	Aug. 21, 1954, Total
New England States			
Maine	6	13	20
New Hampshire	..	41	9
Vermont	7	20	4
Massachusetts	204	448	67
Rhode Island	3	34	4
Connecticut	8	55	8
Middle Atlantic States			
New York	53	169	103
New Jersey	..	55	47
Pennsylvania	..	51	72
East North Central States			
Ohio	11	91	156
Indiana	10	26	46
Illinois	47	147	132
Michigan	18	94	159
Wisconsin	51	160	35
West North Central States			
Minnesota	14	62	53
Iowa	7	70	72
Missouri	7	13	40
North Dakota	1	5	11
South Dakota	..	3	7
Nebraska	7	23	36
Kansas	7	20	44
South Atlantic States			
Delaware	2	4	1
Maryland	11	23	9
District of Columbia	1	2	6
Virginia	6	27	30
West Virginia	2	9	16
North Carolina	9	43	57
South Carolina	5	21	14
Georgia	3	4	46
Florida	5	26	56
East South Central States			
Kentucky	13	36	47
Tennessee	5	20	22
Alabama	3	13	17
Mississippi	5	10	25
West South Central States			
Arkansas	6	10	17
Louisiana	8	16	31
Oklahoma	2	22	30
Texas	25	98	199
Mountain States			
Montana	4	9	6
Idaho	3	6	7
Wyoming	..	3	15
Colorado	10	18	23
New Mexico	3	5	8
Arizona	2	10	7
Utah	..	..	22
Nevada	..	1	9
Pacific States			
Washington	10	17	16
Oregon	7	14	18
California	26	71	325
Territories and Possessions			
Alaska	6	8	19
Hawaii	5	6	3
Puerto Rico	No report received	No report received	..
Total	648	2,152	2,226

Conference on Psychiatry.—The American Psychiatric Association will hold its Midwest Regional Research Conference Sept. 16-17 at Galesburg, Ill., with the cosponsorship of the University of Illinois College of Medicine, Chicago, and the Galesburg (Ill.) State Research Hospital. The conference, the theme of which is "A Comprehensive Evaluation of the Newer Psychopharmacologic Agents and Their Role in Current Psychiatric Practice," will be opened Friday at 9 a. m. by Dr. Otto L. Bettag, Chicago, director, Department of Public Welfare. The morning session will be devoted to "The Neurophysiology and Neuropharmacology of the New Drugs" (chairman, Dr. Percival Bailey, Chicago) and the afternoon session to "The Relative Values of Drugs in the Various Psychiatric Syndromes" (chairman, Dr. Jacques Gottlieb, Detroit). A cocktail hour (courtesy of Smith, Kline & French Laboratories) will precede dinner, 7 p. m., at the Hotel Custer. Dr. Lester H. Rudy, Galesburg, will serve as the chairman for the Saturday morning session on "The Significance and Management of the Complications Resulting from New Drugs," which will be addressed by Drs. Anthony A. Sainz, Marcy, N. Y., Douglas Goldman, Cincinnati, Frank J. Ayd Jr., Baltimore, and Vernon J. Kinross-Wright, Houston, Texas. A tour of the Thudichum Psychiatric Research Laboratory, Galesburg State Research Hospital, will precede luncheon at the hospital. Saturday afternoon will be devoted to a symposium, "The Role of Drug Therapies in Current and Future Psychiatric Practice," in which the moderator will be Dr. Francis J. Gerty, Chicago, and the participants Drs. C. Knight Aldrich and Jules H. Masserman, Chicago, Dr. Paul H. Hoch, New York, and Dr. Lauren H. Smith, Philadelphia.

LATIN AMERICA

Congress on Bronchoesophagology.—The fourth International Congress and fifth Argentine Congress of Bronchoesophagology will convene in Buenos Aires, Argentina, Oct. 28-29 to discuss (1) laryngotracheobronchopathies in children; (2) non-neoplastic stenosis of the esophagus; and (3) free subjects. Physicians wishing to participate must send their articles before Sept. 15 to the Secretary of the Congress, Dr. Juan C. Aráuz, Canjallo 4015, Buenos Aires, Argentina, S. A.

FOREIGN

Symposium on Disease Transmission.—The Institute of Biology will present a symposium, "Biological Aspects of the Transmission of Disease," at the London School of Hygiene, Keppel Street, London, W. C. 1, England, Sept. 29-Oct. 1.

Congress on Prophylactic Medicine.—The fourth International Congress of Prophylactic Medicine will be held in Bad Reichenhall, Germany, Sept. 30-Oct. 4. The subjects to be discussed include Climatology and Balneology; Environmental Influences; Care of the Healthy and of the Sick with Respect to Industrial Injuries; and Mental Hygiene.

Meeting on Obstetrics and Gynecology.—The 16th Congress of the Federation of French-Speaking Gynecologic and Obstetric Societies will convene at the Free University of Brussels, 50 av. Franklin Roosevelt, Brussels, Belgium, Sept. 22-26. Reports will be given on "Treatment of Congenital and Acquired Deformities of the Vulva and Vagina (Prolapse Excluded)," "Postpartum Endocrine Syndromes," and "Therapy of Pregnancy Toxicoses."

Course on Tomography.—The third International Course on Tomography will be held Oct. 3-12 at the Radiology Institute of the University of Genoa in Italy. Lectures on theory, geometric studies, technique and instruments, and applications of tomography in examination of several organs in the normal and the pathological subject will be presented, and special attention will be drawn to recent progress in tomographic method. Information may be obtained from the General Secretary, Dr. Luigi Oliva, Instituto di Radiologia, Ospedale S. Martino, Genoa, Italy.

International Meeting on Forensic Medicine.—The first International Congress of Medical Professional Jurisdiction, Medical Ethics, and Comparative Medical Law will be held in Paris from Sept. 30 to Oct. 3. Medical ethics will be considered under the following topics: (1) Moral Reasons for Medical Secrecy, (2) Consent of the Patient to Medical Action, (3) Independence of the Physician, and (4) Moral Conditions for the Application of New Methods of Diagnosis and Treatment. The meeting on comparative medical law will include a report based on replies to questionnaires sent to competent individuals and institutions in various countries, concerning (1) medical secrecy as affected by public and private methods of health insurance and (2) the conditions governing the practice of medicine. Fees for enrollment at the congress are 5,000 francs (about $14.50) for active members and 2,500 francs (about $7.50) for ladies. A social and recreational program is being arranged. Correspondence should be addressed to the Conseil National de l'Ordre des Medecins, 60, boulevard Latour-Maubourg, Paris (7e), France.

CORRECTION

Dosage of Corticotropin.—In the clinical note, "Corticotropin in Severe Anginose Infectious Mononucleosis," in The Journal, July 23, 1955, page 1021, fifth line, third paragraph, right-hand column, the doses given should read "15, 10, 7.5, 5, and 2.5 U. S. P. units for a total of 40 units."

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

National Conference on Physicians and Schools, Moraine-on-the-Lake Hotel, Highland Park, Ill., Oct. 12-14. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago, Director.

Academy of Psychosomatic Medicine, Hotel Plaza, New York, Oct. 6-8. Dr. Ethan Allan Brown, 75 Bay State Road, Boston 15, Secretary.

American Academy for Cerebral Palsy, Claridge Hotel, Memphis, Tenn., Oct. 10-12. Dr. Robert A. Knight, 869 Madison Ave., Memphis 3, Tenn., Secretary.

American Academy of Neurological Surgery, The Homestead, Hot Springs, Va., Oct. 27-29. Dr. Eben Alexander Jr., Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago, Oct. 9-14. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

American Academy of Pediatrics, Palmer House, Chicago, Oct. 3-6. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Executive Secretary.

American Association of Medical Clinics, Curtis Hotel, Minneapolis, Nov. 4-6. Dr. Edwin P. Jordan, Box 58, Charlottesville, Va., Executive Director.

American Association of Medical Record Librarians, LaSalle Hotel, Chicago, Oct. 3-7. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Director.

American Association of Nursing Homes, Hotel Muehlebach, Kansas City, Mo., Sept. 19-21. Mr. Ira O. Wallace, P.O. Box 366, New Castle, Ky., Secretary.

American Association for the Surgery of Trauma, Drake Hotel, Chicago, Oct. 27-29. Dr. James K. Stack, 700 N. Michigan Blvd., Chicago 11, Secretary.

American Clinical and Climatological Association, The Homestead, Hot Springs, Va., Oct. 31-Nov. 2. Dr. M. N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

American College of Gastroenterology, Edgewater Beach Hotel, Chicago, Oct. 24-26. Dr. Joseph Shaiken, 33 West 60th St., New York 23, Secretary.

American College of Hospital Administrators, Convention Hall, Atlantic City, N. J., Sept. 17-19. Mr. Dean Conley, 620 North Michigan Ave., Chicago 11, Executive Director.

American College of Surgeons, Conrad-Hilton Hotel, Chicago, Oct. 31-Nov. 4. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Secretary.

American Dental Association, San Francisco, Oct. 17-20. Dr. Harold Hillenbrand, 222 East Superior St., Chicago 11, General Secretary.

American Fracture Association, Hotel Fontainebleau, Miami Beach, Fla., Sept. 19-22. Dr. Homer D. Junkin, Paris Hospital, Paris, Ill., Secretary.

American Heart Association, Yung Hotel, New Orleans, Oct. 22-26. Mr. Irving Hexter, 44 East 23d St., New York 10, Secretary.

American Hospital Association, Traymore Hotel, Atlantic City, N. J., Sept. 19-22. Dr. Edwin L. Crosby, 18 East Division St., Chicago 10, Director.

American Medical Writers' Association, Jefferson Hotel, St. Louis, Sept. 30-Oct. 1. Dr. Harold Swanberg, P.O. Drawer 110, Quincy, Ill., Secretary.

American Roentgen Ray Society, Palmer House, Chicago, Sept. 20-23. Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretary.

American Society of Anesthesiologists, Hotel Statler, Boston, Oct. 29-Nov. 3. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago 1, Secretary.

American Society of Clinical Pathologists, Drake Hotel, Chicago, Oct. 10-15. Dr. Clyde G. Culbertson, 1040-1232 West Michigan St., Indianapolis, Secretary.

American Society of Plastic and Reconstructive Surgery, Atlantic City, N. J., Sept. 25-30. Dr. Kenneth L. Pickrell, Duke Hospital Durham, N. C., Secretary.

American Society of Tropical Medicine and Hygiene, Somerset Hotel, Boston, Nov, 2-5. Dr. John E. Larsh Jr., Dept. of Parasitology, School of Public Health, Chapel Hill, N. C., Secretary.

Association of American Medical Colleges, New Ocean House, Swampscott, Mass., Oct. 24-26. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

Association of American Physicians and Surgeons, Chicago, Oct. 7-8. Mr. Harry E. Northam, 185 N. Wabash Ave., Chicago 1, Executive Secretary.

Association of Life Insurance Medical Directors of America, Hotel Statler, New York, Oct. 19-21. Dr. Henry B. Kirkland, P. O. Box 594, Newark, N. J., Secretary.

Association of Medical Illustrators, Hotel Barbizon Plaza, New York, Oct. 1-3. Miss Rose M. Reynolds, Univ. of Nebraska College of Medicine, Omaha 5, Neb., Corresponding Secretary.

Central Association of Obstetricians and Gynecologists, Deshler-Hilton Hotel, Columbus, Ohio, Oct. 5-8. Dr. Edwin J. DeCosta, Suite 602, 116 S. Michigan Ave., Chicago 3, Secretary.

Central Neuropsychiatric Association, The Broadmoor, Colorado Springs, Colo., Oct. 20-22. Dr. Hamilton Ford, 112 North Boulevard, Galveston, Tex., Secretary.

Central Society for Clinical Research, Drake Hotel, Chicago, Nov. 4-5. Dr. Robert H. Ebert, 950 East 59th St., Chicago 37, Secretary.

Clinical Orthopaedic Society, Skirvin Hotel, Oklahoma City, Sept. 30-Oct. 1. Dr. Marcus J. Stewart, 869 Madison Ave., Memphis, Tenn., Executive Secretary.

College of American Pathologists, Drake Hotel, Chicago, Oct. 10-15. Dr. Arthur H. Dearing, 203 N. Wabash Ave., Chicago 1, Executive Secretary.

Colorado State Medical Society, Shirley-Savoy Hotel, Denver, Sept. 20-23. Mr. Harvey T. Sethman, 835 Republic Bldg., Denver 2, Executive Secretary.

Congress of Neurological Surgeons, Hotel Statler, Los Angeles, Oct. 27-29. Dr. Philip D. Gordy, 1007 Delaware Ave., Wilmington, Del., Secretary.

Delaware, Medical Society of, Delaware Academy of Medicine, Wilmington, Oct. 17-18. Dr. Norman L. Cannon, 621 Delaware Ave., Wilmington, Secretary.

District of Columbia, Medical Society of the, Hotel Statler, Washington, D. C., Oct. 10-12. Mr. Theodore Wiprud, 1718 M St., N.W., Washington 6, D. C., Executive Director.

Gerontological Society, Sheraton-Belvedere Hotel, Baltimore, Oct. 27-29. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

Gulf Coast Clinical Society, Pensacola, Fla., Oct. 27-28. Dr. Barkley Beidleman, 1750 N. Palafox St., Pensacola, Fla., Secretary.

Indiana State Medical Association, French Lick Springs Hotel, French Lick, Oct. 16-19. Mr. James A. Waggener, 23 East Ohio St., Indianapolis 4, Executive Secretary.

Industrial Health Conference, Shamrock Hotel, Houston, Texas, Sept. 22-23. Dr. Sidney Schnur, 411 Medical Arts Bldg., Houston 2, Texas, Chairman.

Kansas City Southwest Clinical Society, Municipal Auditorium, Kansas City, Mo., Oct. 3-6. Dr. W. M. Kitchen, 306 E. Twelfth St., Kansas City 6e, Mo., Secretary.

Kentucky State Medical Association, Louisville, Sept. 27-29. Mr. J. P. Sanford, 620 S. Third St., Louisville, Executive Secretary.

Michigan State Medical Society, Pantlind Hotel, Grand Rapids, Sept. 26-30. Dr. L. Fernald Foster, 606 Townsend St., Lansing 5, Secretary.

Midwest Conference on Rheumatic Diseases, Henry Ford Hospital, Detroit, Oct. 5. Dr. J. J. Lightbody, 7338 Woodward Ave., Detroit 2, Medical Director.

Midwestern Section of American Federation for Clinical Research, Thorne Hall, Northwestern University, and Drake Hotel, Chicago, Nov. 3. Dr. Robert J. Glaser, Barnes Hospital, St. Louis 10, Secretary.

Mississippi Valley Medical Society, Jefferson Hotel, St. Louis, Sept. 28-30. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Mississippi Valley Trudeau Society, Hotel Savery, Des Moines, Iowa, Oct. 14. Dr. Harold G. Curtis, Sunny Acres, Cuyahoga County Tuberculosis Hospital, Cleveland 22, Chairman, Program Committee.

Montana Medical Association, Baxter Hotel, Bozeman, Sept. 15-18. Mr. L. R. Hegland, P.O. Box 1692, Billings, Executive Secretary.

National Association for Mental Health, Indianapolis, Nov. 4-6. Mr. Robert M. Heininger, 1790 Broadway, New York 19, Director.

New Hampshire Medical Society, Mt. Washington Hotel, Bretton Woods, Sept. 29-Oct. 1. Dr. Warren H. Butterfield, 18 School St., Concord, Secretary.

North Texas-Southern Oklahoma Fall Clinical Conference, Wichita Falls, Tex., Sept. 17. Dr. E. C. Bebb, Broad St., Wichita Falls, Tex., Chairman.

Oklahoma City Clinical Society Conference, Oklahoma City, Oct. 24-27. Dr. Charles E. Leonard, 512 Medical Arts Bldg., Oklahoma City 2, Secretary.

Omaha Mid-West Clinical Society, Hotel Paxton, Omaha, Oct. 24-27. Mrs. Anne K. Ramsey, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

Oregon State Medical Society, Hotel Heathman, Portland, Sept. 28-Oct. 1. Dr. Richard R. Carter, 1020 S.W. Taylor St., Portland 5, Secretary.

Pennsylvania, Medical Society of the State of, William Penn Hotel, Pittsburgh, Sept. 18-23. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

Postgraduate Assembly in Endocrinology and Metabolism, Indianapolis, Sept. 26-Oct. 1. Dr. John J. Mahoney, Assistant Dean, Indiana University School of Medicine, 1040 W. Michigan St., Indianapolis 7.

Regional Meetings, American College of Physicians:

Billings, Mont., Oct. 7-8. Dr. Harold W. Gregg, 103 North Wyoming St., Butte, Governor.

Charleston, S. C., Oct. 7-8. Dr. Robert Wilson, 165 Rutledge Ave., Charleston, S. C., Governor.

Buffalo, N. Y., Oct. 14. Dr. John H. Talbot, 100 High St., Buffalo 3, N. Y., Governor.

Madison, Wis., Oct. 15. Dr. Frederick W. Madison, 425 East Wisconsin Ave., Milwaukee 2, Governor.

Louisville, Ky., Nov. 5. Dr. Sam A. Overstreet, 332 West Broadway, Louisville, Ky., Governor.

Tennessee Valley Medical Assembly, Read House, Chattanooga, Tenn., Oct. 3-4. Dr. Harry E. Jones, 109 Medical Arts Bldg., Chattanooga 2, Tenn., Secretary.

The Constantinian Society, Sheraton-Park Hotel, Washington, D. C., Oct. 26-29. Dr. C. F. Shook, P. O. Box 1035-36, *Toledo 1, Ohio, Secretary.*

Tri-State Medical Society, Grim Hotel, Texarkana, Tex., Sept. 28-29. Dr. Karlton H. Kemp, 408 Hazel St., Texarkana, Ark., Secretary.

U. S. Chapter, International College of Surgeons, Convention Hall, Philadelphia, Sept. 12-15. Dr. Karl Meyer, 1516 Lake Shore Drive, Chicago 10, Secretary.

Vermont State Medical Society, Mt. Washington Hotel, Bretton Woods, N. H., Sept. 29-Oct. 1. Dr. James P. Hammond, 337 South St., Bennington, Secretary.

Virginia, Medical Society of, Hotel Jefferson, Richmond, Oct. 16-19. Mr. Robert I. Howard, 105 West Franklin St., Richmond, Executive Secretary.

Washington State Medical Association, Olympic Hotel, Seattle, Sept. 11-14. Dr. Frederick A. Tucker, 1309 Seventh Ave., Seattle 1, Secretary.

Western Association of Railway Surgeons, Las Vegas, Nev., Sept. 22-24. Dr. Leo L. Stanley, 1322 Fifth Ave., San Rafael, Calif., Secretary.

FOREIGN AND INTERNATIONAL

Canadian Society for the Study of Fertility, Royal York Hotel, Toronto, Ont., Canada, Oct. 6-8. Dr. Earl R. Plunkett, 469 Waterloo St., London, Ont., Canada, Secretary.

Conference of International Union for Health Education of the Public, Rome, Italy, Apr. 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1^{er}, France, Secretary-General.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Statler, Boston, Mass., U.S.A., Sept. 3-8, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of International Society for Research on Anesthesia, Miami Beach, Fla., U.S.A., Mar. 12-15, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of International Union of Railway Medical Services, Dubrovnik, Yugoslavia, Sept. 19-24. Dr. Jovanovic, Head Office, Yugoslav Railway, Belgrade, Yugoslavia, President.

Congress of International Union Against Venereal Diseases, Naples, Italy, Sept. 25-28. For information address: Prof. Monacelli, University *of Naples, Dept. of Dermatology,* Naples, Italy.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, May 1956. Prof. Umberto Serafini, Largo della Gancia 5, Rome, Italy, Secretary-General.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik. Hamburg-Eppendorf, Germany.

International Academy of Legal and Social Medicine, Plenary Conference, Genoa, Italy, Oct. 13-17. Prof. Domenico Macaggi, Institut de Medicine legale, Universite de Genes, Genes, Italy, President.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Congress of Allergology, Rio de Janeiro, Brazil, S. A., Nov. 6-13. Dr. Bernard N. Halpern, 197 boulevard St. Germain, Paris 7^e, France, Secretary General.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress of Criminology, London, England, Sept. 11-18. For information write: *Dr. Carroll, 28 Weymouth St., London, W.1,* England.

International Congress of European Society of Haematology, Freiburg i,Br., *Germany, Sept. 20-24. Prof. Dr. L. Heilmeyer, Hugstetter Strasse* 55, Freiburg i,Br., Germany, Chairman.

International Congress for the History of Science, Florence and *Milan, Italy, Sept. 3-10, 1956.* Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Hydatid Disease, Athens, Greece, Sept. *14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mac*kenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Buenos Aires, Argentina, S. A., Nov. 19-24, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of International Society of Bronchoesophagology, Buenos Aires, Argentina, S. A., Oct. 28-29. Dr. Juan Carlos Arauz, Cangallo 4015, Buenos Aires, Argentina, S. A., Secretary General.

International Congress of Librarianship and Documentation, Brussels, Belgium, Sept. 11-18. For information write: Dr. A. C. Breycha-Vauthier, Librarian, United Nations, Geneva, Switzerland.

International Congress of Medical Professional Jurisdiction, Medical Ethics, and Comparative Medical Law, Paris, France, Sept. 30-Oct. 3. Dr. J. R. DeBray, Conseil National de L'Ordre des Medécins, 60, Boulevard Latour-Maubourg, Paris 7e, France, Secretary General.

International Congress of Neo-Hippocratic Medicine, Montecatini, *Terme, Italy, May 20-22, 1956. Prof. P. Delore, 13 rue Jarenie, Lyon,* France, Secretary-General.

International Congress of Neuropathology, London, England, Sept. 12-17. Dr. W. H. McMenemey, Maida Vale Hospital for Nervous Diseases, London, W.9, England, Secretary.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for Physical Therapy, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International General Medical Congress, University of Rosario Medical College, Rosario, Argentina, S. A., Nov. 7-12. Dean Jose Imhoff, Santa Fé 3100, Rosario, Argentina, S. A., Chairman.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

International Society for the Study of Biological Rhythms, Stockholm, Sweden, Sept. 15-17. For information write: Prof. Ture Petrén, *Karolinska Institutet, Stockholm 60, Sweden.*

Medical Journalism Meeting, Vienna, Austria, Sept. 23. For information address: World Medical Association, 345 East 46th St., New York, N. Y., U.S.A.

Neuroradiologic Symposium, London, England, Sept. 13-17. Dr. R. D. Hoare, National Hospital, Queen Square, London, W.C.1, England, Secretary.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P. O Box 672, Cairns, N.Q., Australia, Secretary.

Pan American Congress of International College of Surgeons, Mendoza City, Argentina, S. A., Oct. 22-26. For information address: Secretary, Caseros Av. 2154, Buenos Aires, Argentina, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Medical Social Convention, Bogota, Colombia, S. A., Oct. 15-22. Dr. Leopoldo E. Araujo, Avenida de los Presidentes Num. *506, Apartado 2589,* La Habana, Cuba, *Secretary.*

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., *Wooster, Ohio, U. S. A.*

Venezuelan Congress of Medical Sciences, Caracas, Venezuela, S. A., Nov. 18-26. Dr. A. L. Briceno Rossi, Apartado 4412, Ofic. del Este, *Caracas, Venezuela, S. A.,* Secretary General.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

World Medical Association, Vienna, Austria, Sept. 20-26. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., U. S. A., Secretary General.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 19-21. Sec., Dr. D. G. Gill, *State Office Bldg., Montgomery.*

Arizona:* *Examination.* Phoenix, Oct. 12-14. *Reciprocity.* Phoenix, Oct. 15. Exec. Sec., Mr. Robert Carpenter, 411 Security Bldg., Phoenix.

Arkansas:* *Examination.* Little Rock, Nov. 10-11. Sec., Dr. Joe Verser, Harrisburg.

California: *Written.* Sacramento, Oct. 17-20. *Oral and Clinical Examinations for Foreign Medical School Graduates.* San Francisco, Nov. 13. *Oral Examination for Reciprocity Applications.* San Francisco, Nov. 12. Sec., Dr. Louis E. Jones, Room 536, 1020 N St., Sacramento.

Colorado:* *Examination.* Denver, Dec. 6-7. Final date for filing application is Nov. 4. *Reciprocity.* Denver, Oct. 11. Final date for filing application is Sept. 12. Exec. Sec., Mrs. Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

Connecticut:* *Regular. Examination.* Hartford, Nov. 8-10. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic.* Derby, Nov. 8-19. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

Delaware: *Examination.* Dover, Jan. 10-12. *Reciprocity.* Dover, Jan. 19. Sec., Dr. Joseph S. McDaniel, Dover.

Florida:* *Examination.* Miami Beach, Nov. 20-21. Sec., Dr. Homer L. Pearson, 901 N. W. 17th St., Miami.

Georgia: *Examination.* Atlanta, Oct. 5-6. *Reciprocity.* Atlanta, Oct. 7. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Idaho: *Examination and Reciprocity.* Boise, Jan. 9-11. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Illinois: *Examination and Reciprocity.* Chicago, Oct. 11-13. Supt. of Registration, Mr. Fredric B. Selcke, State House, Springfield.

Indiana: *Examination.* Indianapolis, June. Exec. Sec., Miss Ruth V. Kirk, 538 K. of P. Bldg., Indianapolis.

Kansas: *Examination and Endorsement.* Topeka, Dec. 7-8. Sec., Dr. Lyle F. Schmaus, New Brotherhood Bldg., Kansas City.

Kentucky: *Examination.* Louisville, Dec. 5-7. Asst. Sec., Mr. R. F. Dixon, 620 S. 3rd St., Louisville.

Maine: *Examination and Reciprocity.* Portland, Nov. 8-9. Sec., Dr. Adam P. Leighton, Portland.

Maryland: *Examination.* Baltimore, Dec. 13-16. Exec. Sec., Miss Hannah A. McCarthy, 1215 Cathedral St., Baltimore 1.

Michigan:* *Examination.* Lansing, Oct. 12-14. Sec., Dr. J. Earl McIntyre, 118 Stevens T. Mason Bldg., Lansing.

Minnesota:* *Examination and Reciprocity.* Minneapolis, Oct. 18-20. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: *Reciprocity.* Jackson, December. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Missouri: *Examination and Endorsement.* St. Louis, Oct. 21-22. Exec. Sec., Mr. John A. Hailey, Box 4, State Capitol Bldg., Jefferson City.

Montana: *Examination and Reciprocity.* Helena, Oct. 4-5. Sec., Dr. Sidney A. Cooney, 7 West 6th Ave., Helena.

Nebraska:* *Examination.* Omaha, June 18-20. Director, Bureau of Examining Boards, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada:* *Examination and Reciprocity.* Reno, Oct. 4. Sec., Dr. G. H. Ross, 112 North Curry St., Carson City.

New Hampshire: *Examination and Reciprocity.* Concord. Sept. 14. Sec., Dr. John S. Wheeler, 107 State House, Concord.

New Jersey: *Examination.* Trenton, Oct. 18-21. Sec., Dr. Patrick H. Corrigan, 28 W. State St., Trenton.

New Mexico:* *Examination and Reciprocity.* Santa Fe, Nov. 21-22. Sec., Dr. R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.

New York: *Examination.* Albany, Buffalo, New York City and Syracuse, Oct. 4-7. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany.

North Carolina: *Reciprocity.* Asheville, Oct. 31. Sec., Dr. Jos. J. Combs, 716 Professional Bldg., Raleigh.

North Dakota: *Examination.* Grand Forks, Jan. 4-6. *Reciprocity.* Grand Forks, Jan. 7. Sec., Dr. C. J. Glaspel, Box 228, Grafton.

Ohio: *Reciprocity.* Columbus, Oct. 4. *Examination.* Columbus, Dec. 15-17. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oklahoma:* *Endorsement.* Oklahoma City, Sept. 4. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon:* *Reciprocity.* Portland, Oct. 13-15. *Examination.* Portland, January. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

Pennsylvania: *Examination.* Philadelphia, January. Acting Sec., Miss Marguerite G. Steiner, Box 911, Harrisburg.

Rhode Island:* *Examination.* Providence, Oct. 6-7. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Examination.* Columbia, Nov. 7. Sec., Mr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota:* *Examination.* Sioux Falls, Jan. 17-18. Exec. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Tennessee:* *Examination.* Memphis, Sept. 28-29. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

Texas:* *Examination and Reciprocity.* Galveston, Dec. 1-3. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

Virginia: *Examination.* Richmond, Dec. 7-9. *Reciprocity.* Richmond, Dec. 6. Final date for filing application is Nov. 21. Address the Secretary, 631 First St. S.W., Roanoke.

West Virginia: *Reciprocity.* Charleston, Oct. 10. Sec., Dr. N. H. Dyer, Charleston 5.

Wisconsin:* *Reciprocity.* Madison, Oct. 21. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., Madison.

Wyoming: *Examination.* Cheyenne, Oct. 3. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

Alaska:* On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Sec., Dr. John E. Kennedy, Agana.

Hawaii: *Examination.* Honolulu, Jan. 9-12. Sec., Dr. I. L. Tilden, 1020 Kapiolani, St., Honolulu.

Virgin Islands: *Examination and Endorsement.* St. Thomas, Nov. 8-9. Sec., Dr. Earle M. Rice, St. Thomas.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arizona: *Examination.* Tucson, Sept. 20. Sec., Dr. H. D. Rhodes, University of Arizona, Tucson.

Arkansas: *Examination.* Little Rock, Oct. 4. Sec., Dr. S. C. Dellinger, Zoology Dept., University of Arkansas, Fayetteville.

Colorado: *Examination.* Denver, Sept. 7-8. Final date for filing application is Aug. 24. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 18.

Connecticut: *Examination.* New Haven, Oct. 8. Address: State Board of Healing Arts, 258 Bradley St., New Haven 10.

District of Columbia: *Examination.* Washington, Oct. 24-25. Deputy, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington 6.

Florida: *Examination.* Gainesville, Nov. 5. Sec., Mr. M. W. Emmel, Box 340, Gainesville.

Iowa: *Examination.* Des Moines, Oct. 11. Sec., Mr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination and Endorsement.* Detroit and Ann Arbor, Oct. 14-15. Sec., Mrs. Anne Baker, 410 W. Michigan Ave., Lansing 15.

Minnesota: *Examination.* Minneapolis, Oct. 4-5. Sec., Mr. Raymond N. Bieter, 126 Millard Hall, University of Minnesota Campus, Minneapolis.

Nebraska: *Examination.* Omaha, Oct. 4-5. Director, Bureau of Examining Boards, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada: *Examination.* Reno, Oct. 4. Sec., Dr. Donald G. Cooney, Box 9005, University of Nevada, Reno.

Oregon: *Examination.* Portland, Sept. 10 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

South Dakota: *Examination.* Vermillion, Dec. 2-3. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Tennessee: *Examination.* Memphis, Sept. 22-23. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis.

Texas: *Examination.* Austin and Houston, Oct. 21-22. Sec., Brother Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

Wisconsin: *Examination.* Madison, Sept. 23; Milwaukee, Dec. 3. Sec., Mr. William H. Barger, 621 Ransom St., Ripon.

Alaska: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

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*Basic Science Certificate required.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of The Journal. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, Sept. 12

NBC-TV, 9 p. m. EDT. "Medic" presents "Walk with Lions."

ABC-TV, 9:30 p. m. EDT. "Medical Horizons" inaugurates a weekly series of programs with a live remote pickup from the Mayo Clinic. Subject will be the heart-lung bypass. Presented in cooperation with the American Medical Association.

Wednesday, Sept. 14

NBC-TV, 11:30 a. m. EDT. "Medical and Health News with Howard Whitman," a part of the "Home" program.

MAGAZINES

Saturday Evening Post, Sept. 3, 1955

"Surgery Restored My Sight," by Paul W. Kearney

A personal experience story combined with factual information on the surgical removal of cataracts.

The American Magazine, September, 1955

"Man in the Middle," by Clarence Woodbury

The story of Basil O'Connor and his work with the National Foundation for Infantile Paralysis. One paragraph says: "Organized doctors, fearing that O'Connor's practice of paying the bills of polio patients was a step toward socialized medicine, took a slap at him, too. When it was proposed to the American Medical Association that an award be granted to O'Connor as a non-doctor who had made big contributions to medicine, the proposal was voted down."

Redbook, September, 1955

"We Saved the Lives of 22 Children," by Llewellyn Miller

How the town of Gary, Ind., mobilized to treat residents bitten by rabid dogs and prevented the spread of the disease.

Family Weekly Magazine, Sept. 3, 1955

"How to Master Your Fears," by Dr. Franz Alexander and Francesca Alexander

If people with anxieties and fears need special help in solving their problems, the author recommends they consult an expert. Among those lis.ed are the family doctor and a psychiatrist.

GOVERNMENT SERVICES

ARMY

Colonel Glattly Promoted to Brigadier General.—On the eve (July 28) of becoming surgeon of the First Army, Col. Harold Glattly was promoted to brigadier general at a ceremony presided over by Major Gen. Silas B. Hays, the surgeon general. General Glattly will have his headquarters on Governors Island in New York City. For the past four years he has been chief of the personnel division in the surgeon general's office. General Glattly was a prisoner of the Japanese from April 9, 1942, to Sept. 6, 1945. He has been awarded, among others, the Bronze Star, the Asiatic-Pacific medal, the Legion of Merit, the Army Commendation Ribbon, and the Silver Star with Oak Leaf Cluster.

NAVY

New Senior Medical Student Program Offered.—Medical students commissioned as ensigns 1995, U. S. N. R., and about to enter their final year of medical school are eligible to apply for the new ensign 1995 senior medical student program that permits the Navy to sponsor education for medical students who have selected the Navy as the service of their choice. Candidates must meet the following requirements: (*a*) be commissioned an ensign 1995 (medical) U. S. N. R., (*b*) be accepted for enrollment in a school of medicine accredited by the American Medical Association, (*c*) meet the physical standards established for regular Navy staff corps officers, (*d*) on completion of medical school agree to accept a regular Navy commission, and, if a regular commission is not tendered, accept a commission in the Naval Reserve, (*e*) agree to participate in the National Intern Matching Plan. In the event the individual is not matched with the Navy, he must accept a superseding appointment in the Naval Reserve and will be in an inactive status while completing a civilian internship not to exceed 12 months. On completion of this internship, a regular commission must be accepted if tendered. Ensign 1995 (medical) officers, if selected, will be ordered to active duty at the medical school where enrolled, and, while in attendance and successfully pursuing their professional studies will receive the full pay and allowance of their rank.

Pay and allowances are based on longevity as follows: (*a*) less than two years and no dependents—$338.58 per month; with dependents, $355.68 per month, (*b*) over two but less than three years and no dependents—$353.40 per month; with dependents, $370.50 per month, (*c*) over three but less than six years and no dependents—$412.68 per month; with dependents, $429.78 per month, (*d*) over six but less than eight years and no dependents—$428.28 per month; with dependents, $445.38 per month. Ensigns 1995 availing themselves of this senior medical student training and accepting an appointment in the regular Navy will be obligated to serve on active duty at the discretion of the Secretary of the Navy for a minimum period of three years excluding the period served as a senior medical student and in an internship. Applications are currently being processed at all recruiting stations and offices of naval officer procurement, where more detailed information may be obtained.

Personal.—Rear Adm. H. Lamont Pugh, M. C., former surgeon general of the Navy, reported to the Bureau of Medicine and Surgery on Aug. 12 for duty as inspector general of medical department activities, relieving Rear Adm. James R. Fulton, who has been ordered to duty as district medical officer, fourth naval district.——Capt. John Philip Brady and Capt. Arthur William Loy, M. C., were placed on the retired list on Aug. 1. Capt. Brady had more than 30 years of service in the Naval Medical Corps, and Capt. Loy had more than 29 years of service.

PUBLIC HEALTH SERVICE

Poliomyelitis Vaccine.—The Public Health Service has announced the allotment of funds to each state under the 30 million dollar poliomyelitis vaccine assistance act signed Aug. 12 by President Eisenhower. The new law apportions the money in accordance with a formula involving the number of unvaccinated children under age 20 and expectant mothers in each state, the relative per capita income of the state, and the per capita cost of vaccine. Of the 30 million dollars that Congress appropriated, 25 million dollars is available only for the purchase of vaccine and 5 million dollars may be used for the costs of planning and conducting poliomyelitis immunization programs or for the purchase of vaccine. The funds are to be used by Feb. 15, 1956. Under the law a single official agency in each state will be designated for the program and will submit a plan to the Public Health Service when applying for its allocated payment. While permitting the use of this vaccine by private physicians and by nonprofit organizations as well as by public agencies, the law provides that in vaccination programs conducted by public agencies no "means test" may be used to limit eligibility. The law restricts the use of vaccine purchased with these funds to pregnant women and to children under 20. The poliomyelitis vaccine assistance act is separate from the voluntary plan that went into effect July 31 for allocation of the vaccine during the period of short supply. Under the voluntary allocation plan, the Public Health Service allocates the supply.

The release and allocation of 1,177,000 cc. of poliomyelitis vaccine to the states and territories was announced Aug. 9 by the Public Health Service. It is the second allocation of new vaccine under the voluntary control plan for the vaccine. Under the voluntary control plan, this allocation, like the first, will be distributed in the states through both public agencies and to private physicians through normal commercial drug channels. The share that each state receives is governed by the state's proportion of unvaccinated children in the 5 through 9 year age group, which is the current priority group. Each state decides how much of its share it will distribute through public agencies and how much through commercial channels. In addition to the 1,177,000 cc., which was produced by the Wyeth Laboratories, Inc., the Public Health Service also announced the release of some 287,000 cc. produced by the Pitman-Moore Company, which the company will make available to the National Foundation for Infantile Paralysis for use in its program of immunization of first and second graders.

The Food and Drug Administration will hire 48 temporary investigators to enforce the federal prescription drug law against possible "black market" distribution of the Salk poliomyelitis vaccine. The activities of the FDA will be carried out in connection with the voluntary plan for allocation of the vaccine. An appropriation of $300,000 was made by Congress in order to cover the expenses of this special FDA program. The 48 special investigators will check on the distribution of the vaccine for the purpose of accounting for all of the vaccine that is made or shipped. Such checkups will be considered complete in regard to any particular lot of vaccine when the FDA has a record indicating its total distribution into legal channels; i. e., when it has been determined that the vaccine is in the hands of a physician, a hospital, a state or local health department, or other authorized persons or agencies.

Immunization for Foreign Travel.—A supplement to the booklet "Immunization Information for International Travel," recently released by the Public Health Service, carries changes in immunization requirements from June, 1954, to June, 1955. Persons having a 1954 edition of the booklet may obtain copies of the supplement, free of charge, from the U. S. Public Health Service, Division of Foreign Quarantine, Washington 25, D. C. The booklet, including the new supplement, may be purchased for 20 cents from Superintendent of Documents, Government Printing Office, Washington 25, D. C. A 25% discount is allowed on orders of 100 copies or more delivered to the same address.

DEATHS

Fein, Maxwell Janeway ⊕ New York City; born May 18, 1894; Long Island College Hospital, Brooklyn, 1917; specialist certified by the American Board of Pathology; instructor of pathology at the Bellevue Hospital Medical School from 1922 to 1926; clinical professor of pathology at the New York Post Graduate Medical School and Hospital, Columbia University, from 1942 to 1947; clinical professor of pathology at the New York University College of Medicine and the New York Post-Graduate Medical School; visiting professor of pathology at Rutgers University in New Brunswick, N. J., from 1949 to 1951, and visiting professor of pathology at Seton Hall University, South Orange, N. J., since 1948; a founder of the Blue Shield movement in New York, and a vice-president of the United Medical Service; founding fellow, governor, and member of the executive committee of the College of American Pathologists; fellow of the American Society of Clinical Pathologists; member of the World Medical Association, New York Academy of Sciences, and the American Public Health Association; since 1938 secretary-treasurer of the New York State Society of Pathologists; secretary of the section on pathology and clinical pathology of the Medical Society of the State of New York; in charge of Army hospital laboratories during World War I; on advisory committees on State Nurse and Professional Placement, New York City Community College of Applied Arts and Sciences, and the committee on cancer and results of the American Cancer Society; director of laboratories, Broad Street Hospital in New York City, from 1919 to 1928, Mountainside Hospital in Montclair, N. J., from 1928 to 1943, Madison Park Hospital in Brooklyn, from 1928 to 1940, Unity Hospital, Brooklyn, since 1928, where he was consultant pathologist, Adelphi Hospital in Brooklyn, from 1932 to 1949, serving as consultant pathologist, and the Murray Hill Hospital in New York City from 1940 to 1947; from 1920 to 1928 pathologist at the Cumberland Hospital in Brooklyn and the Brooklyn Cancer Hospital; director of the laboratory at the Wickersham Hospital since 1935, Shore Road Hospital since 1930, and director and owner of Laboratories of Dr. M. J. Fein since 1928; at the time of his death consultant pathologist at the Morristown (N. J.) Hospital, Princeton (N. J.) Hospital, South Nassau Communities Hospital, Rockville Centre, Veterans Administration Regional Office, and the Esso Standard Oil Company; died in the New York Hospital July 14, aged 61, of cancer of the lung.

Meeker, William Raymond ⊕ Mobile, Ala.; born in Hazel Dell, Ill., June 2, 1889; Rush Medical College, Chicago, 1920; interned at the Cook County Hospital in Chicago; served as instructor in anatomy at the University of Chicago, assistant professor of pathology at Loyola University in Chicago, and professor of pathology at the University of Arkansas in Little Rock, where he was medical director of the City Hospital; spent four years as staff member at the Mayo Clinic, Rochester, Minn., after which he was assistant professor of surgery at the University of Illinois College of Medicine in Chicago; certified by the National Board of Medical Examiners; member of the founders group of the American Board of Surgery; fellow of the International College of Surgeons and the American College of surgeons; past-president, Gulf Coast Clinical Society; active member of the Southeastern Surgical Congress and the Southern Medical Association; past-president of the staffs of the Mobile Infirmary, Providence Hospital, Mobile City Hospital, and Blessed Martin de Porres Hospital; captain in the Medical Corps of the U. S. Naval Reserve during World War II; died July 22, aged 66, of coronary occlusion.

Barkoff, Samuel ⊕ New Orleans; born in New Orleans Nov. 26, 1912; Tulane University of Louisiana School of Medicine, New Orleans, 1934; served on the faculty of his alma mater; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychoanalytic Association and the American Psychiatric Association; president-elect of the New Orleans Psychoanalytic Society; consultant for the department of public welfare for the state of Mississippi and consultant for the division of vocational education of Louisiana State Department of Education; on the staff of the Touro Infirmary; died July 11, aged 42.

Kowalski, Henry John ⊕ Seattle; born in Grand Rapids, Mich.; July 2, 1916; University of Michigan Medical School, Ann Arbor, 1944; specialist certified by the American Board of Internal Medicine; certified by the National Board of Medical Examiners; served with the Army Medical Corps in Korea; interned at the Massachusetts General Hospital in Boston, where he served a residency at the Boston City Hospital; instructor in medicine at Harvard Medical School from 1951 to 1953; on the faculty at the University of Washington Medical School; a staff member of the Swedish, Providence, Doctors, and King County hospitals and the Veterans Administration Hospital, where he died July 20, aged 39, of pulmonary artery thrombosis.

Lorenz, Thomas Holt ⊕ Madison, Wis.; born in Madison Feb. 26, 1920; University of Wisconsin Medical School, Madison, 1944; interned at the Evanston Hospital in Evanston, Ill.; formerly a resident at the State of Wisconsin General Hospital in Madison and the New York Hospital in New York City; assistant professor of medicine at his alma mater; lieutenant colonel in the National Guard and commander of the 135th medical battalion; during a three year service period in the Medical Reserve Corps of the U. S. Army was stationed in the European theater of operations for 18 months during the German occupation; died in Camp McCoy, Sparta, June 16, aged 35, of coronary occlusion.

Friedman, Arnold Leo ⊕ Rockville Centre, N. Y.; born in New York City Aug. 27, 1917; University of Michigan Medical School, Ann Arbor, 1942; specialist certified by the American Board of Surgery; affiliated with the Meadowbrook Hospital in Hempstead, where he served an internship; served a residency in pathology at the New York Post Graduate Medical School and Hospital in New York City and in surgery at the Mount Sinai Hospital in Cleveland; on the staffs of the Mercy and South Nassau Communities hospitals; served during World War II; died in the Long Island College Hospital, Brooklyn, July 31, aged 37, of a brain tumor.

Aitkens, Herbert Baber ⊕ Le Center, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1893; member of the school board; served on the staff of St. Joseph's Hospital in Mankato; died June 6, aged 88, of senility.

Bentley, Neil Isaac ⊕ Detroit; University of Michigan Homeopathic Medical School, Ann Arbor, 1906; on faculty of Detroit Homeopathic Medical College; specialist certified by American Board of Ophthalmology and American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; consultant on the staffs of the Florence Crittenden Hospital and Grace Hospital, where he died June 22, aged 73, of coronary thrombosis.

Bernard, C. Henry ⊕ Cleveland; University of Kansas School of Medicine, Kansas City, Kan., 1930; served during World War II; interned at St. Alexis Hospital; on the staff of the Children's Hospital in Akron, where he was formerly a resident in the City Hospital; died May 20, aged 52, of coronary heart disease.

Blackwelder, Glenn Elvin ⊕ Chico, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1947; served during World War II; died June 23, aged 34, of pneumonia.

Bolin, Herbert Julian ⊕ Knoxville, Tenn.; Tennessee Medical College, Knoxville, 1915; past-president of the Knox County Medical Society; died in Fort Sanders Hospital May 12, aged 66, of primary pulmonary emphysema.

⊕ Indicates Member of the American Medical Association.

Brown, Hugo Otto, Magnolia Springs, Ala.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1910; died in Mobile July 10, aged 67, of coronary occlusion.

Bunshaw, Albert Hudson ⊕ Erie, Pa.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1909; for many years on the staff of St. Vincent's Hospital; died June 29, aged 74, of a heart attack.

Burkhart, Victor H. ⊕ Hurst, Ill.; Chicago College of Medicine and Surgery, 1910; served as mayor; died in the Doctors Hospital, Carbondale, July 27, aged 72, of coronary disease.

Carr, Joseph Thompson ⊕ Moselle, Miss.; Kentucky University Medical Department, Louisville, 1905; died in Methodist Hospital, Hattiesburg, Aug. 5, aged 80.

Cavanaugh, Leo Martin, Takoma Park, Md.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1913; past-secretary of the Allegany County Medical Society; served during World Wars I and II; for many years consultant for the Veterans Administration; died in Mount Alto Veterans Administration Hospital, Washington, D. C., July 16, aged 67, of cancer.

Champion, William Leon ⊕ Atlanta, Ga.; College of Physicians and Surgeons, Baltimore, 1891; fellow of the American College of Surgeons; served as first president of the Atlanta and Georgia Urological Society; past-president of the Fulton County Medical Society; for many years on the staff of St. Joseph's Hospital; died July 2, aged 86.

Cochran, Charles Edgar, St. Louis; American Medical College, St. Louis, 1903; died in the Park Lane Hospital April 25, aged 75, of cerebral hemorrhage.

Comroe, Julius Hiram Sr. ⊕ York, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1903; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; an associate member of the American Medical Association; on the staff of the York Hospital; died in the Hospital of the University of Pennsylvania, Philadelphia, July 16, aged 73, of coronary occlusion.

Dewees, Jacob Highley, New York City; University of Pennsylvania Department of Medicine, Philadelphia, 1894; member of the Medical Society of the State of New York; died in the Veterans Administration Hospital, Bath, April 5, aged 85, of lobar pneumonia.

Elmer, Florence Dudley Greaves, Portland, Ore.; University of California Medical School, San Francisco, 1934; died in the Good Samaritan Hospital July 10, aged 46, of pulmonary edema and rheumatic heart disease.

Ford, Walter Ari ⊕ Houston, Texas; Bennett Medical College, Chicago, 1913; on the faculty of Baylor University College of Medicine; served during World Wars I and II; on the staff of the Jefferson Davis Hospital; died July 12, aged 68, of coronary occlusion.

Goldberg, Sidney, Chicago; University of Illinois College of Medicine, Chicago, 1952; following his internship at the Cook County Hospital, served a residency in pediatrics at the Louisville General Hospital and the Children's Hospital in Louisville, Ky.; died in the Albert Merritt Billings Hospital July 31, aged 29, of Hodgkin's disease.

Green, William L. Sr., Lexington, Ga.; Southern Medical College, Atlanta, 1887; died in Athens May 23, aged 91, of dissecting aneurysm of the aorta, arteriosclerosis, and diabetes mellitus.

Grinnell, Wendell B., Preston, Minn.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; died May 30, aged 82, of cerebral hemorrhage.

Hammel, Seth A. ⊕ Topeka, Kan.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; veteran of the Spanish-American War; served during World War I; medical officer of the state selective service during World War II; formerly on the faculty of the Kansas Medical College, Medical Department of Washburn College; died July 28, aged 76.

Harrington, Richard ⊕ Williamsville, N. Y.; Trinity Medical College, Toronto, Canada, 1901; an associate member of the American Medical Association; served on the staffs of Millard Fillmore, Edward J. Meyer Memorial, and Sisters of Charity hospitals in Buffalo; formerly director of Bank of Williamsville; died in Clarence July 5, aged 82, of coronary disease.

Henes, Edwin Jr. ⊕ Milwaukee; Columbia University College of Physicians and Surgeons, New York City, 1910; died July 25, aged 70, of arteriosclerosis.

Hibbard, Burt ⊕ Lima, Ohio; University of Buffalo School of Medicine, 1900; at one time vice-president of the Northern Tri-State Medical Association; formerly an officer in the regular Army; served during World War I; at one time county coroner; died in the Veterans Administration Hospital in Marion, Ind., July 18, aged 78, of bronchial pneumonia.

Hollinshead, Theodore Highbee ⊕ Louisville, Ky.; Hahnemann Medical College and Hospital of Philadelphia, 1898; an associate member of the American Medical Association; died May 29, aged 95, of pulmonary edema.

Horton, Logan Warren, New Orleans; Howard University College of Medicine, Washington, D. C., 1927; died in the Veterans Administration Hospital, Tuskegee, Ala., May 5, aged 57, of cancer of the stomach.

Iseri, Kawor, Los Angeles; Cooper Medical College, San Francisco, 1912; died July 23, aged 76, of cerebral thrombosis.

Jackson, Ransome Otha, Savannah, N. Y.; Rush Medical College, Chicago, 1928; health officer for the village and town of Savannah; from 1943 to 1954 also health officer of the town of Tyre, Seneca County; chief of staff of Lyons (N. Y.) Hospital; on the staffs of the Auburn Memorial and Mercy hospitals in Auburn; died June 12, aged 59, of coronary thrombosis.

James, Frederick Weiss, Norfolk, Va.; Leonard Medical School, Raleigh, N. C., 1906; died May 25, aged 74, of myocardial infarction.

Johnson, John Birger Albert ⊕ Lowell, Mass.; Tufts College Medical School, Boston, 1908; served during World War I; at one time on the school board; died in the Shaw Hospital July 6, aged 76, of a cerebral vascular accident.

Johnston, Lawrence Walton ⊕ Terrell, Texas; Baylor University College of Medicine, Dallas, 1938; formerly city health officer; member of the American Academy of General Practice; councilor of the 14th medical district of Texas, of which he was formerly secretary-treasurer; past-president and secretary of the Kaufman County Medical Society; interned at the Shreveport (La.) Charity Hospital; on the staffs of the Holton-Johnston Hospital and Terrell State Hospital; died in Falls Church, Va., May 15, aged 45, of coronary occlusion.

Kaley, Clifford Matthew ⊕ Caldwell, Idaho; Northwestern University Medical School, Chicago, 1904; on the staff of the Caldwell Memorial Hospital, where he died May 25, aged 77, of cancer.

Keating, Charles Albert ⊕ Paterson, N. J.; Jefferson Medical College of Philadelphia, 1902; served during World War I; died in the Paterson General Hospital July 17, aged 80, of pulmonary embolism.

Leake, Norman Augustus ⊕ Torrance, Calif.; Medical Department of the University of California, San Francisco, 1912; an associate member of the American Medical Association; served during World War I; draft board medical examiner during World War II; on the staff of the Jared Sidney Torrance Memorial Hospital; died in Long Beach July 6, aged 78, of cerebral arteriosclerosis.

Lester, David Howard Russell ⊕ Schenectady, N. Y.; Albany (N. Y.) Medical College, 1929; interned at the Ellis Hospital, where he was on the courtesy staff; formerly a resident in surgery at the Bellevue Hospital in New York City; on the courtesy staff of St. Clare's Hospital; died June 4, aged 50, in an airplane accident.

McGrath, Maurice James ⊕ Oswego, N. Y.; Albany (N. Y.) Medical College, 1911; past-president of the Oswego Academy of Medicine; from 1940 to 1950 assistant health officer of Oswego; on the staff of the Ellis Hospital in Schenectady; an emeritus member of the staff of the Oswego Hospital, where he died May 28, aged 72, of heart disease.

FOREIGN LETTERS

BELGIUM

Acute Digestive Hemorrhages.—At a meeting of the Belgian Surgical Association in May, Moyson and de Scoville stated that in hemorrhages from the upper gastrointestinal tract peptic ulcers (chiefly duodenal) accounted for 70%, esophageal varices and gastritis for 10 to 20%, gastric carcinoma for 4%, hiatus hernias and other esophageal disorders for 10%, and an indeterminate group for the rest. Diagnostic methods need to be improved. Ulcers have a definite antecedent history in 75% of the patients. The gastric juice shows achlorhydria when there is a bleeding ulcer. Emergency radiological examination is useful, not dangerous, and can reveal the coexistence of such lesions as a peptic ulcer and esophageal varices, an ulcer and hiatus hernia, or hiatus hernia and diverticulum. If hepatic cirrhosis is suspected, a transparietal splenoportogram should be made. Prior radiographic examination, if it is negative, may make it impossible to interpret the films because some barium may be left in the digestive tract. A film showing hypertension of the portal system gives no information as to the source of the hemorrhage.

If the patient has an ulcer and esophageal varices, the problem is not resolved, although the ulcer is more frequently the source of the hemorrhage. In such patients the installation of a balloon tube gives the differential diagnosis, because either the hemorrhage stops or blood may be aspirated from the stomach. Esophagoscopy is dangerous. The bromsulphalein test gives information on the liver function but tells nothing about the source of the hemorrhage. It is important to determine the age of an ulcer because a recent ulcer still has normal arterial walls while an older lesion is accompanied by endarteritis. Multiple ulcers can cause massive hemorrhages. They usually follow an aggressive emotional outburst, which liberates corticotropin and causes hypersecretion with an increase in hydrochloric acid and pepsin. Esophageal varices bleed either because of thinning of the covering epithelium, which bursts abruptly, or peptic erosions resulting from regurgitation of gastric secretion and weakening of the esophageal epithelium by stasis anoxia.

Ulcers should be treated by discontinuous gastric aspiration, intragastric injections of thrombin, antacids, and blood transfusion. Transfusions have reduced the number of patients requiring operation and increased the number who can withstand surgical intervention. All patients over 50 with an ulcer of more than six months duration should be operated on immediately, and all patients with ulcer, regardless of their age, who have recurrence of hemorrhage within 48 hours or who continue to bleed during their hospitalization should be operated on. This also holds for patients with hemorrhagic gastritis. In patients with hemorrhage from esophageal varices, a Sengstaken-Blakemore tube should be passed and the patient rapidly and abundantly transfused. Splenoportography performed after shock has been controlled will establish whether the block is intrahepatic or extrahepatic.

If the patient has cirrhosis and hemorrhage is not controlled within 24 hours, transesophageal ligation of the varices, which is always effective, or simple ligation of the splenic artery, which is often effective, is required. In the case of extrahepatic block after the hemorrhage is temporarily controlled, splenectomy and splenorenal anastomosis or esophagogastrectomy may be performed. The latter is the only rational treatment in a patient who has already had a splenectomy or who has an associated esophageal peptic ulcer and varices. In cirrhotic patients ligation of the varices should be accompanied by portacaval anastomosis or arterialization of the portal blood. When exploratory operations are performed the portal pressure should be measured by means of a nylon catheter inserted into an epiploic vein. This benign procedure eliminates the possibility of portal hypertension, or, if this exists, of substituting direct ligation of the splenic artery for a blind gastrectomy that is without effect.

Determining Blood Alcohol.—At a meeting of the Belgian Legal Medicine Society in April, Professor Labarre and Mrs. Hans reported that blood alcohol levels may be determined by chemical, physical, or physicochemical methods. Factors to be considered are the ratio between alcohol ingested and eliminated, per hour and per kilogram of body weight; the distribution of the toxic agent in the various organs of the body; variations due to sex; and individual characteristics. To be valid, the analysis must be made under certain prescribed conditions. Whole blood must be used. The optimal time for obtaining the blood sample is 90 minutes after the last ingestion of alcohol. Professor Labarre believes the lowest blood alcohol level that may be said to contribute to causing an automobile accident is 0.12%. The amount of liquor that must be consumed for this rate to be reached depends on the weight of the consumer, whether the alcohol is consumed on an empty stomach, the condition of the subject's liver and kidneys, whether he has glycosuria, his tolerance to alcohol, and such substances that may have been ingested simultaneously as antihistamines and barbiturates.

Laws on Alcohol Consumption.—The National Committee Against Alcoholism has published a pamphlet: "Reflections on the Law in Relation to Alcohol Consumption." The present law prohibiting the sale of alcohol in quantities less than two liters and the dispensing of alcoholic beverages in public places, although still in effect, is not strictly observed. Present statistics on the consumption of beer and spirits prove that this legislation prevents the massive consumption of distilled beverages in public. The brochure insists that the prohibition on consuming and dispensing spiritous liquors in all public places be maintained. The National Committee is affiliated with most health and youth organizations and subscribes to the categorical pronouncements of the Royal Academies of Medicine, the Belgian Neurological Society, the Psychiatric Society, the National League of Public Morality, and the National Council of Belgian Women. The present laws on the consumption of alcohol are susceptible to improvements, but to weaken them would be to expose the population to serious dangers.

Radiological Hazards.—Dr. Bacq, in an address to the Belgian Society of Radiology, said that geneticists admit the possibility of a genetic hazard if the basal level of radioactivity of the earth be raised through the intensive use of atomic energy. All possible sources of ionizing radiation should be rigidly controlled. In particular, radiologists ought to: (1) check the output of their apparatus and make sure they use machines that give satisfactory information with the minimum dosage of x-rays, even if such machines are more expensive; (2) take steps to avoid irradiation of the gonads during examinations of the digestive tract, bladder, and colon, at least in persons of procreating age; and (3) use physiological radioprotectors of the cysteine or cystine type to eliminate direct and indirect effects, especially on the bone marrow and adrenals.

Health of Miners.—The government has enacted a new safety measure for the benefit of mine workers. All persons applying for this work must have microscopic examination of their stools for hookworm ova. The examination will be carried out during the 40 days preceding the date these persons are to start working, and they can have access to the underground works only if the results of their examination are negative. The examination will be performed twice, once between the 30th and 40th days, and again between the 90th and 100th days after the first examination. The examinations may be performed only by physicians appointed by the Ministry of Public Health. It is the employers' responsibility to see that this program is carried out and kept up to date.

The items in these letters are contributed by regular correspondents in the various foreign countries.

CHILE

Diabetic Survey.—Writing in the January issue of the *Revista médica de Chile*, Prof. D. Urrutia and his co-workers review their experience with 1,396 diabetic patients. The age when the disease was discovered was between 41 and 60 years in 65%; in only 7% was the disease discovered before the age of 30; and in 9% it was discovered after 60. In 14% the diagnosis was made only through a blood sugar determination performed during a regular health examination. Only 44% of the patients consulted a physician in the first year of their disease. Severe alcoholism was found in only 5%, which corresponds to the incidence of alcoholism in the general population. The diabetes began as a consequence of acute pancreatitis in only six patients. Body weight was normal at the beginning of treatment in 46%; obesity was present in 37%; and 17% were underweight. Only 29 had hypertension. In 40% the only treatment required was dietetic; 35% required an average of 40 units of insulin a day; 20% required 20 to 30 units daily; and 5% required more than 50 units per day. Severe hypoglycemic reactions occurred in only 24 patients. In 82% of the patients the course of the disease was benign, and in the rest it was severe because of complications or the intensity of the metabolic process. Acidosis and coma were present in 43 patients and were responsible for the death of 5. Vulvar pruritus was present in 37%, balanitis in 0.86%, pyorrhea in 11%, and furunculosis in 2.3%. Coronary arteriosclerosis was present in 20 patients, cerebral vascular accidents in 13, intermittent claudication in 22, gangrene in 10, polyneuritis in 34, and albuminuria in 25. Typical diabetic retinitis was seen in 152 of 422 patients examined with the ophthalmoscope. Sexual impotence was present in only four patients. Diabetes and pulmonary tuberculosis were associated in 7%. Pregnancy, present in 13 patients, was found to aggravate the symptoms of diabetes only moderately. The authors concluded that, in those patients in whom the disease started before the age of 40, the percentage of severe cases was greater than in the elder group. If the onset is rapid the prognosis is worse than if it is slow or asymptomatic. Men more frequently had severe forms than women, and the disease was more severe in patients who were underweight at the first consultation than in those in whom the weight was normal.

Viral Hepatitis.—Prof. R. Armas Cruz and his co-workers, in the *Revista médica de Chile* for February, report a series of 275 patients with viral hepatitis. Of these 62.2% were between 15 and 24 years of age. The highest incidence occurred in the summer. In 16.3% of the patients there was a history of blood transfusions or intravenous injection. The onset was sudden in 35%. Abdominal distress was the symptom most frequently present (44%) followed by such gastrointestinal disturbances as nausea, vomiting, diarrhea, or constipation in 36%. Myalgias and arthralgias were present in 26%. In 15% the initial symptom was jaundice without other symptoms. Most of the patients were admitted to the hospital a few days after the onset of their disease. When the disease was full-blown the main symptoms were abdominal distress (48%), asthenia (40%), and anorexia (40%). Fever was present in only 7%. The main physical sign was hepatomegaly with or without tenderness (68%). Splenomegaly was present in 13% and always associated with hepatomegaly. It was generally of a moderate degree and painless. Bilirubinemia was present in all but five patients who had the anicteric form of viral hepatitis. Blood cholesterol values were under 200 mg. per 100 cc. in 64% of the patients. Alkaline phosphatase levels exceeded 10 Bodansky units in only 13.4%. Of the flocculation tests the thymol turbidity was the most sensitive. In about half of the patients the strength of the flocculation tests decreased with the clinical subsidence of the disease and in the rest the tests remained positive up to six months after the clinical cure. In two patients they remained positive in spite of a negative liver biopsy. The main point of interest in the erythrocyte count was the presence of macrocytosis in 70% of the patients. The albumin-globulin ratio was inverted in 88%. Prothrombinemia was studied in only 99 patients, and in 49 it was below normal. It is difficult to say when hepatitis is cured, because no laboratory test gives this information and liver biopsy is not practical as a routine test.

Rabies Control.—Dr. Benjamin Blood, of the Pan-American Sanitary Bureau, as a result of a survey, stated that rabies is a problem in all Latin American countries except Uruguay. The Chilean government is cooperating with the bureau in its antirabies campaign. The vaccination of dogs must be supplemented by the capture of stray dogs. The absence of the sylvatic type of rabies in Chile makes the control of this disease much easier. The collaboration of the public is essential to the success of the campaign.

ENGLAND

Physique of School Children.—In a symposium in the *British Medical Journal* of June 25 it is stated that to obtain standards for somatotypy of children by physical anthopometry at the age of 11, measurements of 371 boys and 421 girls were made as an additional part of the routine medical examination in the city of Oxford schools during the period of January, 1953, to March, 1954. After discovery of significant relationships between physique and final honors among Oxford undergraduates, it was decided to compare the physique of the children with their marks in the entrance examination. The less muscular children are more often successful in passing the examination. The children's physiques were classified according to Sheldon and Tucker's somatotype method, with two important differences. First, since it was impossible to photograph the children, the estimates were based on physical measurements alone, whereas Sheldon uses mainly photoscopic methods. Second, since photographic standards for children have not yet been published, it seemed dangerous to adopt Sheldon's terminology; therefore, the components were renamed. The first component, endomorphy, was called fat (F); the second, mesomorphy, indicating bone and muscle development, was termed muscularity (M); and linearity (L) was substituted for the third component, ectomorphy. The ponderal index (height over the cube root of weight) was used as the basis for rating linearity.

The "11-plus" entrance examination consisted in 1953 of three papers—an intelligence test, an English test, and an arithmetic test—to which the Peel test of practical ability was added in 1954. Complete results were not available for the children who scored less than 70 in the intelligence test and for those absent from one or more of the written examinations. Although the former were automatically excluded by their low marks from taking any further examinations, their physique distribution is analyzed in the intelligence test section of the boys' part, since all of the very low scorers were boys. Results were analyzed in terms of those scoring above and below the mean for each subject. Of the girls' results, the most outstanding feature was that the less muscular sectors (in particular, LF) consistently, in all the tests, contained a greater proportion of girls scoring above the mean than the rest. The muscular-linear girls (LM and ML) varied in performance, while the muscular-fat ones (MF and FM) always had a lower percentage of high scores than the whole sample. The less muscular girls gained the largest number of grammar and technical school places, whereas the fat muscular girls received significantly few places. In all these tests stocky and tubby girls in sectors FM and MF did poorly as compared with the others. Many lean girls (LM) did well in the intelligence and English tests, but few did well in the arithmetic and practical ability tests. The slightly more muscular and less linear girls of sector ML, on the other hand, performed well at arithmetic and in practical ability, but did poorly in English and the intelligence tests. The boys' results were not as highly significant as were the girls'. There was, however, a consistent trend throughout all the results. The fattest boys (FM) were the most successful of the larger samples, and the muscular ones with secondary fat dominance were the least successful.

Experiments in Nursing.—There will be no reveille at dawn for the 64 patients who are to occupy two experimental wards at Larkfield Hospital, Greenock Royal Infirmary. Like patients elsewhere, those at Larkfield are normally called after 6 a. m. Hospital administrators have always said that the washing of patients must be completed by the night staff before they go off duty at about 8 a. m. In the experimental wards washing will be left to the day nurses who will be responsible also for bed-making. In return, nurses on night duty will take more part in the evening care of patients. In the new wards the main objective will be to provide more personal care by nursing patients in small groups. The wards are in a block, specially built to test new ideas in design and construction. A team of experts studying the problem included an architect, a physician, a nurse, a field-work organizer, a historian, and a statistician. They have been assisted by time-study engineers and others. A two-story building, the block has a 32-bed unit on each floor, one for men, the other for women. Each ward has centrally placed ancillary rooms, with 16 beds grouped on either side. This will cut the amount of walking done by average nurses while on duty between two and two and a half miles a day. Two experienced nurses will be in charge of the new wards. They will be given what clerical help they need so that they can devote maximum time to nursing care and teaching. They will control nursing teams of three, each with a trained nurse in charge and each caring for 16 patients. Each pair of teams will be helped by three relief nurses.

Maternal and Child Welfare.—The 42nd conference of the National Association for Maternal and Child Welfare was held at Church House, Westminster, in June. Sir Allen Daley said that at the time of the first conference in 1906, infant and maternal mortality were both five times greater than they are today. The Minister of Health said that for the first time in the history of this country the number of deaths from diphtheria was represented by a single digit (9), and the number of cases reported was 182. During the year the Minister of Health had tried to bring home to local authorities his concern at the bad effect on children's health, especially mental health, that followed the break-up of family life. It must be recognized that a team of people are involved in staving off these effects, and there can not be a thoroughly efficient service unless all parts of it work well and happily together.

Naval Hero.—Surgeon Lieut. C. E. Rhodes of the Royal Naval Volunteer Reserve lost his life on June 16 at the age of 27 in circumstances of great gallantry. He was serving on H. M. S. Maidstone, a submarine depot ship lying in Portland Harbor, when an explosion occurred in H. M. Submarine Sidon, which was alongside the Maidstone. He immediately boarded the submarine and without hesitation went below to help the injured. He succeeded in rescuing at least two of the crew, but when the order was given to abandon the sinking submarine, he did not return. Either he did not hear the order or he chose, true to his calling, to stay below tending the injured. The Sidon sank 20 minutes after the explosion. Dr. Rhodes had nearly completed his period of full-time national service. He was survived by a widow and a three-week-old daughter.

Joint Annual Meeting of British and Canadian Medical Associations.—The Joint Annual Meeting of the British Medical Association, the Canadian Medical Association, and the Ontario Medical Association, held in Toronto in June, attracted nearly 5,000 registrants. This is the fourth time that the British Medical Association has met in Canada. The last meeting in Toronto was in 1906. The new president, Dr. T. C. Routley, is not only president of the Canadian Medical Association but also of the British Medical Association. In his presidential address, Dr. Routley surveyed the medical and surgical scenes at the time of the three previous meetings of the two associations in Canada, the first being in 1897.

Chemotherapy of Bacterial Infections.—At the same meeting Professor Garrod of St. Bartholomew's Hospital, London, said that the various sulfonamides had similar antibacterial activities, whereas the antibiotics were much more selective in action, except that all the tetracyclines acted similarly. It is difficult for the clinician to keep up with all the new developments, particularly the new dosage forms. There are now 47 different dosage forms of penicillin. With regard to penicillin therapy it is better to have a persistent, even if low, blood level than a high, but short-lived, level. The indications for the use of antibiotics in different conditions can be divided into the absolute and the conditional. Use of penicillin is specific in scarlet fever, lobar pneumonia, gonorrhea, and syphilis; streptomycin is effective in tuberculosis and tularemia; chloramphenicol is effective in typhoid fever; and chloramphenicol and the tetracyclines are effective in typhus and other rickettsial infections. In the conditional group the particular strain or organism may not be sensitive, as with micrococci (staphylococci) in a hospital environment, or the condition may be due to a variety of organisms. The best course in such cases is to use the most likely antibiotic, pending a bacteriological investigation. Professor Garrod stressed the dangers of indiscriminate chemotherapy. The main abuses are the administration of agents to undiagnosed patients, to patients with nonsusceptible infections, to patients with trivial complaints such as colds, and to patients for prophylactic use. Chemoprophylaxis is, however, justifiable in major operations on the chest, abdomen, and brain, in complicated labor, and for prophylaxis in patients with rheumatic fever, but about 90% of the antibiotics prescribed are not justified. In a census of surgical patients more antibiotics were being given for prophylaxis than for treatment. Apart from the waste of money if improperly used, the antibiotics have dangerous side-effects in a small number of patients. These side-effects include allergic responses, aplastic anemia, and fulminating, resistant micrococcic enteritis. Chemoprophylaxis is not needed in aseptic operations, normal labor, or ordinary dental work. It is regrettable that in Britain the hospital doctor is tempted to use chemoprophylaxis as a protection against litigation should any untoward incident occur.

Dr. T. E. Ray of Toronto said that bacterial resistance to antibiotics varied with the locality and with the frequency of use of particular antibiotics. Inadequate dosage is also a cause of the emergence of resistant strains. This would not matter if the organisms became confined to one patient, but they become disseminated and infect other patients. In the Hospital for Sick Children, Toronto, nearly two-thirds of the pathogenic streptococci isolated in 1954 were penicillin-resistant, and one-third was resistant to streptomycin and the tetracyclines. The incidence of resistance to chloramphenicol and erythromycin was still low. Escherichia coli showed increasing resistance to streptomycin and the tetracyclines; Proteus and Pseudomonas aeruginosa were only occasionally sensitive, but many important pathogens were still fairly sensitive. These included the beta-hemolytic streptococci, the Diplococcus pneumoniae, the Neisseria meningitidis, the Neisseria gonorrhoeae, type B Hemophilus influenzae, and Treponema pallidum. The change is particularly evident in hospitals, but not so much in private practice, although resistant strains are appearing in the home. As the use of antibiotics becomes stabilized, the incidence of resistant strains in the hospitals does likewise. Treatment with antibiotics allows resistant mutant cells to survive treatment and fails to suppress any naturally resistant strains that may be present. Dissemination of these occurs via healthy or convalescent carriers. The problem may be solved by avoiding indiscriminate and prolonged use of antibiotics or by using them in rotation and isolating patients infected with highly resistant strains.

Dr. K. J. R. Wightman of Toronto said that in choosing an antibiotic the patient should be carefully examined before a decision is made as to whether one is needed and that if one is needed a careful choice should be made of the antibiotic. The severity of the infection, the accessibility and type of the lesion, the resistance mechanisms, both general and local, the previous reactions to antibiotics, and the bacteriological diagnosis influence the use and choice of antibiotics. The patient must have some natural resistance to the infection as well. Preference should be given to such bactericidal drugs as penicillin, streptomycin, and polymyxin. Absence of side-effects is also important, and the patient should be questioned on any previous reactions to antibiotics. Close cooperation between clinician and bacteriologist is necessary for rational and effective chemotherapy. Before deciding to use a particular drug, the sensitivity of the organism, absorption, diffusibility, mode of action, risk of toxic effects, ease and flexibility of administration, and even cost to the patient should all be considered. Antibiotics can be divided into three broad groups according to their bacterial spectrum. In the first group is penicillin, particularly active against gram-positive bacteria. Erythromycin is an alternative drug, useful particularly *in penicillin-resistant micrococcic infections.* Bacitracin should only be used in severe infections because of its nephrotoxic effect; it is useful for topical application because of the low risk of sensitization. The second group includes streptomycin and dihydrostreptomycin, which are of limited use because of the early development of drug resistance and the risk of eighth nerve damage. Neomycin has a nephrotoxic effect and is only suitable for local use. Polymyxin is particularly effective against the Pseudomonas organisms. In the third group are the broad spectrum antibiotics. They are bacteriostatic, apt to produce gastrointestinal upsets, and dangerous because of the risk of superinfection in the alimentary tract with micrococci, coliform organisms, and yeasts. These complications are less likely with chloramphenicol.

Prof. J. W. Crofton of Edinburgh summarized the recent work done in Britain by the Medical Research Council groups with streptomycin and isoniazid. With effective chemotherapy tubercle bacilli can be eliminated from the sputum in 6 months without the emergence of drug resistance, and most patients can get back to work in 12 to 18 months, although in some such patients chemotherapy may have to be continued. Effective chemotherapy includes such combinations as 1 gm. of streptomycin daily, with 100 mg. of isoniazid twice daily, or 1 gm. of streptomycin daily, with 5 gm. of *p*-aminosalicylic acid four times daily, for patients under 30 years of age. For older patients an alternative scheme is 1 gm. of streptomycin twice weekly, with 100 mg. of isoniazid twice daily and 5 gm. of *p*-aminosalicylic acid twice or four times daily. Treatment with streptomycin, twice weekly with isoniazid and *p*-aminosalicylic acid in full daily doses is not without risk, as drug resistance may develop in some patients. In cases of drug resistance the drug to which the organism is still sensitive can be used with viomycin, oxytetracycline, or pyrazinamide. Chemotherapy should usually be continued for 9 to 12 months and, if cavities are present, for 9 to 12 months after the last positive sputum, or until the cavity appears to be closed. If chemotherapy is effective deaths are rare, unless treatment is delayed or postoperative death results. Of 107 patients treated over a period of three years, only two deaths occurred, although 31 of these patients had advanced disease. All the others became sputum negative, and 97% were able to perform some work.

Anesthesia.—At the same meeting Prof. Robert Macintosh of Oxford made a plea for simplicity in anesthesia. He thought that in many instances the anesthetic apparatus was unnecessarily complex, especially outside the larger hospitals, and he doubted whether the development of apparatus along "battleship" lines indicated progress. Nitrous oxide and cyclopropane although useful are not indispensable, and anesthesia can be carried out in an emergency without gas cylinders. Operations can now be performed with the patient under light general anesthesia to produce unconsciousness and with a muscle relaxant to abolish reflex responses. The latter are safe in competent hands provided a needle is strapped into a vein for intermittent injections. The one most useful piece of apparatus is a small bellows, with unidirectional valves in the supporting base to assist respiration. An oxygen cylinder is not necessary for such equipment; air, in fact, is safer, because oxygen might mask deficient pulmonary exchange. If an inhalation agent were needed, it could be run in through a tap at the base of the bellows, or a vaporizer could be attached for ether or trichloroethylene. For most operations air is adequate for oxygenation, and it is only in intrathoracic surgery that supplementary oxygen is needed, because in this procedure the lungs are seldom fully inflated. Sir Robert corrected two common errors: (1) that controlled respiration can be carried out by positive pressure without an endotracheal tube and (2) that closed-circuit anesthesia is not essential for the maintenance of controlled respiration.

Dr. C. Langton Hewer of St. Bartholomew's Hospital, London, deprecated the use of the Trendelenburg position in surgical operations because there is no need for it with the use of muscle relaxants. Its only value is in the treatment of shock. During operations the position compresses the lungs and reduces vital capacity; produces hypoxia and hypercapnia; tends to drown the patient with gastric juice, saliva, and mucus that collect in the nasopharynx; raises the blood pressure; and causes thrombosis in the legs and pulmonary embolism. The use of shoulder rests may also cause a palsy of the brachial plexus.

Dr. H. R. Griffiths of Montreal said that anesthetists should be trained as clinicians not as scientists but that scientists should advance the frontiers of anesthesia. He visualized the increased use of gases because they were more controllable in use and more readily eliminated than barbiturates, which he felt should only be used to induce sleep. Dr. Griffiths, who was the first to use curare in anesthesia, said that the safest and best muscle relaxant was succinylcholine, because it was so rapidly hydrolyzed. There is no future in hypothermia in anesthetic practice unless better drugs are discovered. For the moment it should be reserved for cardiac operations. The anesthetist of the future must be a physician, a pharmacologist, a physiologist, a toxicologist, a biochemist, and an electronic engineer.

Dr. L. Longtin of Montreal described a new technique of intubation for the prevention of contralateral infection during pulmonary operations. Two separate cuffed tubes connected to the same anesthetic machine deliver anesthetic gases to the lung. One is placed in the left bronchus to deliver gas to the left lung, and, by blowing up the cuff, the latter can be sealed off. The other is placed in the trachea, 2 cm. below the vocal cords, and delivers gas to the right lung only, as the left side becomes sealed off. Relaxation is secured with succinylcholine

Discussing the techniques used for anesthetizing newborn infants, Dr. Cope of University College Hospital, London, said that he pushed muscle relaxants to the stage of complete curarization, using *d*-tubocurarine chloride in a dose of 0.3 mg. per kilogram of body weight. Oral intubation is performed with use of succinylcholine, and artificial ventilation is carried out, first with oxygen and then with a mixture of oxygen and nitrous oxide in equal volumes. Meperidine is sometimes used in a dose of 0.5 mg. per pound of body weight to produce sensory depression. As it is fatally easy to overhydrate babies with fluids used intravenously, these should be limited to 10 ml. in 24 hours.

Dr. Bromage of Chichester, England, described a new technique for assessing analgesic drugs. He said that the vital capacity was reduced by 60 to 80% during the 48 hours after upper abdominal operations, because of pain on inspiration, and that it was measurable by spirometry. Hence, the potency of an analgesic agent could be expressed by the degree to which it restored the vital capacity.

The use of chlorpromazine in anesthesia was commented on by Dr. D. A. Hopkin of London, who said that he had used it in 2,000 operations as an adjuvant to anesthesia. It exerts a selective depression on the subcortical centers and prepares the patient halfway for surgical anesthesia. Recovery can be prolonged with this drug as it intensifies the action of anesthetic agents and reduces muscle tone. Dr. Hopkin was impressed by the absence of operative shock when chlorpromazine was used. In fact, the signs of shock can be reversed in a patient with a perforated viscus, so that he is already prepared for operation. The speaker was also impressed by the good postoperative condition of patients who had been given chlorpromazine. Pulmonary complications are reduced, there is less vomiting and coughing, and patients are less restless and more cooperative. There is no convincing evidence that hypothermia is essential for chlorpromazine to exert its action. Many of its effects can be explained by its depressive action on what is known as the reticular activating system of the brain stem.

Simple Obesity.—At the same meeting Dr. E. R. Cullinan discussed the essential nature, effects, and treatment of simple obesity. Average weight-for-age tables of the life insurance companies are not satisfactory, and the Metropolitan Life Insurance Company has prepared tables with no distinction for age after 25 years, giving a range for three groups of differing build—slight, medium, and heavy. Simple obesity is the result of an excess of caloric intake over output. Constitution and inheritance may play a part. There is no abnormal metabolic pathway in the obese. Appetite is controlled by the hypothalamus. Psychic influences can affect the hypothalamic control. Weight reduction is best achieved by a high-fat, low-calory diet, although, in practice, restricting carbohydrates is usually sufficient. Exercise should be increased, but this should not be violent as it increases appetite. The amphetamine drugs have some value in the treatment of obesity.

Delay in Treating Cancer.—At the same meeting Dr. Ralston Paterson of Manchester asked whether the early treatment of cancer was of proved value. The term "early" is often equated to the time interval from the first symptom, but this disregards the different rates of growth found in different tumors. Patients with growths of a limited extent, whatever the duration of symptoms, have a much better chance of being cured, although cure can never be guaranteed to anyone regardless of how early treatment is begun. Patients delay getting advice because of ignorance and fear. Ignorance is the cause of delay in cancers of the cervix, mouth, and skin, and fear is the *main* cause of delay in breast cancer. Fear causes more delay than ignorance because the layman still believes that cancer is incurable. In an investigation carried out at Manchester only one-third of the women questioned thought that cancer was curable. In a similar investigation in the United States, two-thirds of the women thought it was sometimes curable. Any public education scheme must dispel the fear of cancer and emphasize the fact that some cancers are curable.

War Pensions.—The "Report on War Pensioners," published by the Ministry of Pensions and National Insurance, shows that at the end of 1954 the number of disability pensions being paid to veterans of World War II was just over 367,000, compared with 375,528 a year earlier, and the number of such pensions being paid to veterans of World War I was 273,335, compared with 284,484 at the end of 1953. Treatment allowances were granted to 43,750 pensioners prevented from working because they were receiving approved treatment for service-connected disability. During the year, 93,000 such pensioners of World War II were examined by medical boards, and 70% retained their current pensions unaltered. A total of 4,087 pensions were awarded up to the end of 1954 for service in Korea (2,055), Malaya (1,162), Suez Canal Zone (819), and Kenya (51).

NEW ZEALAND

Antileptospiral Effect of Milk.—An epidemic of leptospirosis has occurred in New Zealand. Of the 262 patients involved, 200 were dairy farmers and their families, and the others were persons connected with the handling of livestock (freezing workers, transport workers, and veterinary surgeons). The absence of milk-borne epidemics in New Zealand and in the large number of countries where there is bovine leptospirosis made it desirable to initiate an investigation. Kirschner and his co-workers (*Proc. Univ. Otago M. School* 33:4, 1955) showed that human, cow, and goat milk and human colostrum have a strong lytic action on Leptospira. There was no difference in the results obtained with the three types of Leptospira prevalent in New Zealand. The results have been confirmed by repeating the experiment with a virulent strain of Leptispira icterohaemorrhagiae, the destruction of the organism being shown by injection into guinea pigs. Certain physicochemical properties of the lytic agent suggested that it might be lysozym, but this possibility appears to be unlikely because egg white, saliva, or tears, known sources of lysozym, do not affect Leptospira. The factor also differs from lactenin, a substance in milk that kills streptococci, since it is not destroyed by glutathione, which destroys lactenin.

NORWAY

Sanitation of Summer Camps.—The Hygiene Institute of the University of Oslo has sent a memorandum to the Minister of Health urging him to centralize the measures necessary for keeping summer camps sanitary. Since 1940 the tourist traffic in Norway in the summer has risen by 250% whereas hotel accommodation has risen by only 15%. At the same time more and more tourists are avoiding the hotels and availing themselves of the overnight hospitality afforded by summer camps. About 35% of the Swedish visitors to Norway in July and August, 1954, were camping tourists. At one time the Norwegian Royal Automobile Club took a hand with the organization of summer camps, but some of this work has now been taken over by the Norwegian Automobile Association. In the summer of 1954, 4,400 tourists from abroad were questioned on leaving Norway about their experiences in the summer camps they had visited. Their comments were not flattering. In *Tidsskrift for den norske lægeforening* for May 15 Dr. Kaare Svendsen gives an account of his inspection of four summer camps run by landowners as private undertakings. The local sheriff has insisted that watchmen be employed and that a record be kept of all who stay a night or more. The local health authorities have framed rules for the sanitary control of these camps, and their owners are requested to provide sanitary drinking water, refuse disposal, and privies. Svendsen points out that although the camps he visited were among the best of their kind in Norway, they presented health risks to both the tourist and the local population. He recommends that the sanitary control of summer camps should not be left to the initiative of the local health authorities, whose activities vary from one district to another, but that a uniform system of control be directed by the Ministry of Health.

TURKEY

Pneumoperitoneum in Pulmonary Tuberculosis.—In *Tüberküloz* (vol. 9, no. 4) Dr. Tevfik Gökce and his co-workers report that in 1937 pneumoperitoneum was used in six of their patients but was then discontinued until 1949. Since then it was administered 1,760 times. Of the 1,000 patients who were followed up, 10 had moderate, 60 had marked, and 161 had progressive lesions in one lung; and 12 patients had moderate, 179 had marked, and 578 had progressive lesions in both lungs. The diaphragm ascended on the average of 4.5 cm. and most often on the right side. Pneumoperitoneum was performed in 28 patients simultaneously with phrenic écrasement, in 62 patients simultaneously with artificial pneumothorax, and in 104 patients after pneumothorax proved ineffective. In 34 patients pneumoperitoneum was performed with thoracoplasty and pneumothorax as a control for the lesions of the other side. In 120 patients the initial pneumoperitoneum was performed to stop hemorrhage. During the therapy 762 patients gained weight, 96 showed no change, and 142 lost weight. In 686 patients the sedimentation rate decreased; in 275 there was no change; and in 39 an increase in the sedimentation rate was observed. In 350 patients there was an increase in vital capacity; in 230 there was no change; and in 420 there was a decrease in vital capacity. It was observed that after pneumoperitoneum the vital capacity decreased from 5 to 10% but reverted to normal after the lesions and empyema disappeared. Pneumoperitoneum had beneficial effects on 120 patients with hemorrhage. Clinical, radiological, and laboratory examinations revealed the following effects of pneumoperitoneum on patients with lesions and cavities: 14% recovered; 58% were improved; in 26% the therapy was ineffective; and in 2% the condition was aggravated. During the first week of the therapy loss of appetite and loss of weight was observed in almost all patients, and brief, moderate, peritoneal reactions were observed in 5%. In 5 of the 18 patients in whom an inguinal hernia developed, an operation was performed and in 4 of these pneumoperitoneum was continued after the operation. In 19 of the 23 patients in whom an umbilical hernia developed, pneumoperitoneum was discontinued. When such a hernia can be controlled with bandaging, however, there is no contraindication to pneumoperitoneum. Ascites developed in 5% of the patients, but absorption occurred spontaneously. A few subcutaneous emphysemas were traced to faulty technique. Air embolus occurred in two patients, both of whom recovered. Mediastinal emphysema developed in one patient; he recovered. Acute appendicitis necessitating appendectomy developed in three patients. Cavitary souffles were observed in 1.5% of the patients. Lobar atelectasis was observed in two patients. Torsion of the omentum, obliterative tuberculous or hemorrhagic peritonitis, or tuberculous meningitis was not observed. The authors concluded that, as with artificial pneumothorax, pneumoperitoneum should be continued for three years.

MEDICAL LITERATURE ABSTRACTS

NEUROLOGY & PSYCHIATRY

Contribution to Therapy and Etiology of Multiple Sclerosis. H. Tschabitscher, T. Wanko, H. Schinko and B. Fust. Schweiz. med. Wchnschr. **85**:556-557 (June 4) 1955 (In German) [Basel, Switzerland].

Of 85 patients with multiple sclerosis of several months' to 34 years' duration, 50 were treated with isoniazid, 21 were treated with iproniazid, and 14 were subjected to a double-blind test with isoniazid and placebos. Isoniazid was given in daily doses of 500 mg., 400 mg. of which was given in four divided doses of 100 mg. orally and 100 mg. intravenously. The average duration of the treatment was 37 days, and the average total dose of the drug was 21 gm. Of the 50 patients treated with this drug, 28 had a chronic course, i. e., their disease did not show any tendency to improvement for at least three years before isoniazid therapy was instituted; in the other 22 patients the course of the disease was characterized by recurrent bouts. Of these 50 patients, 24 were improved in that the neurological symptoms were markedly alleviated, 17 were improved without substantial reduction of the neuropathological signs, 7 remained unchanged, and 2 became worse. Undesirable side-effects in the form of a transient urticarial rash occurred in two patients. Follow-up examination, three to six months after treatment was terminated, showed that the favorable effect of isoniazid continued in most of the patients with the chronic course, but in only one-third of those with recurrent bouts. Iproniazid was given in daily doses of 300 mg., 250 mg. of which was given in five divided doses of 50 mg. orally and an additional 50 mg. intravenously. The average duration of the treatment was 37 days and the average total dose 14 gm. Of the 21 patients treated with this drug, 12 obtained marked improvement, 3 were improved, 5 were unchanged, and one became worse. Several patients complained of dryness of the mouth, which as a rule subsided after four days. Three patients had mild edema in the lower extremities, but it disappeared spontaneously. Of the 14 patients who were subjected to a double-blind test, 8 were given isoniazid according to the same schedule as the 50 patients and 6 were given placebos. Of the eight patients who were given isoniazid, four were markedly improved, two were improved, and two remained unchanged. Of the six patients who were given placebos, one was improved, three were unchanged, and two became worse. The results obtained with the antituberculous drugs in the authors' patients with multiple sclerosis were superior to those obtained with any other treatment for multiple sclerosis. The cerebrospinal fluid of 30 patients was examined and found to contain Mycobacteria, the identity and significance of which are at present being investigated.

Tic Douloureux and Facial Pain: Therapeutic and Pathogenetic Considerations. E. Sperling and A. Stender. Deutsche Ztschr. Nervenh. **173**:161-183 (No. 2) 1955 (In German) [Berlin, Germany].

The authors review observations on 524 patients with pains in the region of the trigeminal nerve. They found that in typical tic douloureux the operation of Frazier or gangliolysis will generally produce complete freedom from pain. After gangliolysis no impairment of the sensory perception remains. This method represents a superior surgical method, provided i favorable results are permanent. Neuralgias in the first bran of the trigeminal nerve must be carefully analyzed with rega to the character of the pain. Operations on the gasserian ganglio are indicated if the pain occurs in the form of true paroxysm In most patients, however, the pain in the region of the for head and eye is of a different character, that is, it is a burni pain. It may appear alone or in the form of an atypical involv ment in an otherwise typical tic douloureux in the second a third branches. In such patients, operations on the gasseri ganglion may be followed by residual anesthesia doloros Blockage of the gasserian ganglion by means of alcohol shou be rejected in patients with atypical pain in the first branc In the presence of neuralgias of the first branch, operations the posterior cranial fossa (Dandy, Sjöquist) produce mc favorable results than do operations on the gasserian ganglio In the typical forms of tic douloureux, hydantoin preparatio such as diphenyl hydantoin, should always be tried first, becau these preparations usually produce immediate improvement a bridge the period until there is spontaneous recovery or ur an operation can be performed. Diffuse atypical pains in t region of the trigeminal nerve contraindicate operations on t gasserian ganglion. In these patients the pain is caused by t sympathetic nerves, and the tracts that conduct this pain cann be reached by operations on the somatic nervous system. In m patients these diffuse atypical pains extended to the occiput a the neck. The application of ultrasonic therapy to the cervi spine was found to be effective in many of these patients, p vided no contraindications existed to this treatment. In the sev forms of sympathetic facial pains, such as in anesthesia doloro artificial hibernation has proved helpful. The authors believe t vasomotor disturbances, possibly of the gasserian ganglion, n explain the pathogenesis of true trigeminal neuralgia.

Serpasil as Sedative in Psychiatry. K. H. Fremming and I. F regaard. Ugesk. læger **117**:599-603 (May 12) 1955 (In Dani [Copenhagen, Denmark].

The sedative effect of Serpasil was tested in a heteroge group of 98 patients with the common characteristics of psyc motor unrest, restlessness, tension, and aggressiveness; 83 w schizophrenics. No difference was seen on parenteral and peroral administration. To avoid the suggestive effect of a r remedy 37 patients were given Serpasil in periods alternat with placebos. The Serpasil dosage applied in most cases is tween 2 and 4 mg. daily or, for old patients, between 0.5 a 1.5 mg. daily. In 61 cases the effect was good or tolerably go in 37, doubtful or absent. In all cases the treatment was f lowed by fall in blood pressure, bradycardia, and lowered bo temperature. When the systolic blood pressure fell below mm. Hg Serpasil dosage was reduced or temporarily suspend as also when the pulse rate was less than 46 per minute. Serpa was substituted for electroshock treatment in 33 schizophre patients who had received regular electroshock treatment f a shorter or longer period of years. Patients with recent mani responded poorly, but the results were often good in patie with chronic schizophrenic psychoses. The best results were distressed patients with moderate agitation. Caution is urged the treatment of elderly patients and of patients with cardi disease. There were no dangerous side-effects during the Serpa treatment. In five cases there was stuffy nose and in six cas a Parkinson-like syndrome.

The Effect of Chlorpromazine ("Largactil") on Glucose Tole ance. F. B. E. Charatan and N. G. Bartlett. J. Ment. Sc. 10 351-353 (April) 1955 [London, England].

The use of chlorpromazine is now firmly established in ps chiatry. A hyperglycemic effect in man has been reported a might be of importance if, for example, in schizophrenia, chlo promazine were combined with insulin coma treatment. An i vestigation was carried out to study the effect of chlorpromazin

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The place of publication of the periodicals appears in brackets preceding each abstract.

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on glucose tolerance in 11 schizophrenic patients about to be treated with chlorpromazine. The patients were taking the ordinary hospital diet. A control glucose tolerance curve was carried out in the fasting recumbent subject after the ingestion of 50 gm. of glucose in a single dose. The fasting blood sugar, and the blood sugar at one-half, one, one and one-half, two, and two and one-half hours after the ingestion of glucose was estimated by the method of Folin and Wu on capillary blood. The test was repeated two or three days later with 50 mg. of chlorpromazine in 20 ml. of isotonic sodium chloride solution given intravenously immediately after the ingestion of glucose by the patient. It was found that the intravenous administration of chlorpromazine produced a significant delay in the expected fall in the blood sugar level after the ingestion of 50 gm. of glucose by mouth. This effect is considered to be due to a depressant effect of chlorpromazine on liver function or to increased secretion of glucocorticoids from stimulation of the adrenal cortex.

Is the Diagnostic Study of the Cerebrospinal Fluid Approaching a Crisis? V. Kafka. Deutsche Ztschr. Nervenh. 173:103-110 (No. 2) 1955 (In German) [Berlin, Germany].

Some investigators have advanced the idea that since all proteins in the cerebrospinal fluid originate from the blood, the examination of the cerebrospinal fluid is only a test of the permeability of the meninges. Other arguments were added to question the validity of the diagnostic examination of the cerebrospinal fluid, but the author shows that rather than approaching a crisis, the study of the cerebrospinal fluid has been advanced, particularly by electrophoretic studies. He shows that, contrary to the opinions of some, electrophoresis cannot replace either chemical fractionation of the proteins of the cerebrospinal fluid nor the colloidal tests, and he urges that in the future all three of these methods should be used. This will not only bring closer the solution of the cardinal question as to where the proteins originate and what their function is but will find new diagnostic pictures. More detailed analysis, rather than the cursory methods now prevailing, will have to be used, however, to obtain more information about diagnostic problems and about the physiological and pathological aspects of the central nervous system.

Idiopathic Paralysis of the Diaphragm. G. Wense. Wien. klin. Wchnschr. 67:417-418 (June 10) 1955 (In German) [Vienna, Austria].

An attempt was made to determine the cause of idiopathic unilateral paralysis of the diaphragm of three to four years' duration in 14 men between the ages of 47 and 71 years. Eight patients had paralysis on the left side and six on the right side. Some indications for the cause of the paralysis were observed in eight patients. One had a moderate-sized goiter extending substernally on the paralyzed side, one had been operated on for a similar type of goiter, one had a definite diaphragmatic pleuritis with a slight pleural effusion, one had a bronchial carcinoma at a considerable distance from the phrenic nerve, but microscopic examination revealed that the nerve was surrounded by chronic inflammatory infiltration and there was edematous swelling. The history of four patients revealed that they had had pneumonia on the paralyzed side and fibrous changes and thickened pleura were present as remainders of the previous inflammatory process. It is possible that in these four patients the phrenic nerve had become imbedded in the fibrous tissue and had lost its function. In the remaining six patients no indications for the cause of the paralysis of the phrenic nerve were found.

PEDIATRICS

Infantile Spastic Hemiplegia. M. A. Perlstein and P. N. Hood. Am. J. Phys. Med. 34:391-407 (June) 1955 [Baltimore].

This report is concerned with a study of 334 patients with infantile spastic hemiplegia observed by the senior author during the past 10 years. Approximately 30% were private patients; 25% were seen at the Children's Neurology Clinic of the Cook County Hospital, Chicago; and the remaining 45% were from itinerant clinics throughout the midwest. Hemiplegia of the right side predominated over that of the left side in a ratio of 5:4. The right-sided and left-sided hemiplegias were distributed randomly between the congenital and postnatally acquired, those in males and females, and those with or without seizures. There was no significant difference in the intelligence or in the age of acquiring speech; the only other significant difference between those with involvement of the right side and those of the left was the even greater proportion of right-sided hemiplegia (2:1) in the congenital cases with birth weights of 8 lb. 3,628.7 gm.) and above. Spastic hemiplegia occurred more often in males than in females (4:3); however, sex was not related to other variables in this series, including birth weight. Negroes did not differ from whites, with the exception of their greater representation in the postnatally acquired and in the seizure groups. These differences were thought to be the result of socioeconomic factors rather than racial factors. Postnatally acquired forms accounted for about a third of the present series. The time of onset of hemiplegia showed no relationship to race, sex, side of involvement, or intelligence; however, an earlier age of walking and talking was noted in the patients in whom onset of cerebral palsy predated the acquisition of these skills, as compared with those with congenital hemiplegia. The incidence of seizures in this series was higher than that reported for all types of brain injury for mixed spastic groups and for most other series of spastic hemiplegia. Seizures were significantly more prevalent in those with the acquired forms and in the mentally defective patients; moreover, patients with seizures showed a significantly lower mean I. Q. score. Seizures were also associated with delayed onset of walking and talking but were not related to birth weight. Patients with spastic hemiplegia were approximately 20 I. Q. points retarded in comparison with normal children. Although the mean I. Q. scores did not differ significantly, there was a significantly greater number of mental defectives below than above the age of 6. The mentally defective group walked and talked later than did the educable group. Those of I. Q. between 90 and 110 percentile differed only slightly from normal children in walking and talking. Infants with spastic hemiplegia were 0.7 lb. (317.5 gm.) lighter than normal infants, the mean birth weight being 6.4 lb. (2,903 gm.). The proportion of premature infants and abnormally heavy birth weights was significantly greater in infants with spastic hemiplegia than in normal infants. There was a relationship between the age of walking and the age of the onset of the spastic hemiplegia in the acquired cases; other variables were not related to the age of onset in acquired hemiplegia.

Congenital Pneumonia: A Clinical Summary. A. J. Schaffer, M. Markowitz and A. Perlman. Maryland M. J. 4:327-333 (June) 1955 [Baltimore].

Congenital pneumonia may be acquired days or weeks before delivery or it may have its inception during some stage of labor. Autopsies were performed on 76 infants at the Maryland Women's Hospital. These were either stillborn infants or those who died within the first three days of life. Pulmonary inflammation was found in 27 (35%); in 7 it was considered to have constituted a contributory cause of death; in 6 others it was the sole discoverable cause of death. The following conclusions were drawn from a careful study of the 13 severe cases in the Women's Hospital plus 15 comparable cases from the Johns Hopkins Hospital. Ten examples were culled from the 28 for this study of clinical characteristics. The rest were eliminated because they were stillborn births or because other lesions were found at autopsy that might have confused the symptomatic picture. Six of the 10 were full-term infants, and 4 were premature. All the full-term infants were sick at birth. Three showed characteristic asphyxia livida, two had asphyxia pallida, and the sixth breathed promptly but was grayish and dusky in color. Breathing time in the others was delayed 2.5 to 10 minutes; crying was delayed or never occurred. The respiration was abnormal after spontaneous breathing was established. Physical signs varied. In most, dulness to percussion could be elicited and either rhonchi or fine crackling rales could be heard. Fever occurred in all the mature infants. Neurological complications were present in four of the six. These consisted either of persistence of flaccidity or of the development of hypertonicity and rigidity of all extremities and back. The heart failed in two, as evidenced by cardiac enlargement, poor heart sounds, and enlargement of the liver. In the premature infants who died of pneumonia, the clinical picture was much less sharply defined. They were all tiny (1 to 2½ lb. [453.59 to 1,134 gm.]), and they all became deeply cyanotic shortly after birth. Roentgenoscopy shows a fairly characteristic distribution of shadows. Intrauterine pneumonia must be differentiated from a number of morbid conditions that commonly affect the newborn infant. This task is rendered doubly difficult by the fact, demonstrable by postmortem examination, that pneumonia often complicates many of these same conditions. The authors briefly discuss the differentiation of hyaline membrane disease, atelectasis, and pneumothorax. Congenital pneumonia is not necessarily fatal. Vigorous antibiotic therapy of mothers whose membranes had ruptured prematurely will probably, although not surely, prevent a certain number of cases. Antibiotic therapy of the infant must be begun at the first suspicion that pneumonia might be present, and must be intensive. Both the pediatrician and the obstetrician must develop a greater awareness of this condition.

Anemia in Premature Infants. R. Clément. Presse méd. **63:**935 (June 18) 1955 (In French) [Paris, France].

The cause of the anemia seen in premature babies is a marked deficiency in hematopoietic activity during the neonatal period. Premature infants begin life with a greater volume of blood than babies born at term: 108 ml. per kilogram, dropping to 73 ml. per kilogram toward the seventh week of life. The volume of red blood cells falls from an estimated 46 ml. per kilogram at birth to 16 ml. by the seventh week. The number of reticulocytes falls extremely low during the first week of life and remains so for the next five to six weeks. During this period, the fall in red blood cells and hemoglobin level is considerable: 1.1 to 1.3% daily in the case of the former and 1.2 to 1.43% daily in the case of the latter. Spontaneous improvement, heralded by reticulocytosis, begins after the five-to-seven-week period. During the first three or four months of life the body of a premature infant has more iron than is necessary for hemoglobin synthesis, so iron therapy is not indicated at that time. It is of value later on. Transfusion therapy has proved its merit in the treatment of anemia of prematurity, but it should be discontinued after hematopoiesis picks up, because it might interfere with the process of spontaneous correction.

Variations in Secondary Antibody Response to Specific Antigens. M. Siegel. J. Pediat. **46:**631-641 (June) 1955 [St. Louis].

The data described were obtained among patients in an institution for the feeble-minded. Since the patients remained at the institution for many years, it was possible to observe them for prolonged periods and to employ as controls uninoculated individuals living under the same environmental conditions. Three types of antibody response to reinoculation were observed, depending on the antigen used. An accelerated and very marked increase in circulating antibodies commonly associated with a booster dose was seen after the use of tetanus toxoid and is characteristic of the response to bacterial toxins or toxoids. An accelerated but somewhat less marked secondary reaction was observed after the use of typhoid vaccine and is said to be typical of antibody formation following particulate antigens like bacteria, Rickettsia organisms, and viruses. In the case of pneumococcic polysaccharides, no increase in antibodies could be detected after reinoculation until many years after the primary stimulus, when the circulating antibody content was very low or nonexistent. The degree and duration of the secondary reaction also varied with the host. Individual differences were detectable with each antigen used. The individual's secondary reaction pattern to a specific antigen appeared to be reproducible by the use of a single dose only; however, there seemed to be little relationship between his responsiveness to the different types of antigen, that is, to tetanus toxoid and typhoid vaccine. The antibody content in the blood stream was lower among individuals with mongoloid features. The relation of these results to hormonal deficiencies reported in the mongoloid is conjectural at present. Electrophoretic analysis of pooled serum revealed comparable levels of gamma globulin in the mongoloid and normal individuals tested. The foregoing differences in response to reinoculation are not only of scientific interest but also of practical importance in the prevention o modification of clinical infection by means of active immunization. They suggest that different cellular processes might b involved in the formation of various types of antibodies.

Measles Encephalitis: I. Prophylactic Effect of Gamma Globu lin. M. Greenberg, O. Pellitteri and D. T. Eisenstein. J. Pediat **46:**642-647 (June) 1955 [St. Louis].

The authors tried to determine whether gamma globulin i of value in preventing the encephalitic complications of measles One hundred sixty-five cases of measles encephalitis reporte in New York City from the beginning of 1949 to July 1, 1954 were investigated epidemiologically. This number occurre among a total of 115,847 cases of measles, that is, there wa one case of encephalitis for each 702 cases of measles. It wa somewhat higher in females (1:611) than in males (1:817). Th incidence of the complication increased with the increase in ag of the patients with measles. It was one and one-half times a high in children 5 to 9 years of age and three times as high i those 10 to 14 years of age as in those under 5 years of age The case fatality rate was 15%. It was twice as high in female as in males and twice as high in children under 5 years of ag as in those 5 to 9 years of age. There were no deaths in olde children. Sequelae occurred in about 9% of the cases, divide equally between boys and girls. They occurred about six time more often in those 5 to 14 years of age than in those unde 5 years. There were none in children 15 years of age or olde All but one of the cases of encephalitis occurred in childre who had not received prophylactic doses of gamma globuli prior to onset of measles, although there were distributed du ing the period of the study about 300,000 doses of gamm globulin for children under 5 years of age and, during the fir four years of the study, about 85,000 doses for those 5 yea of age or older. The authors feel that encephalitis is a ra complication of measles modified by gamma globulin.

Measles Encephalitis: II. Treatment with Gamma Globuli M. Greenberg, E. A. Appelbaum, O. Pellitteri and D. T. Eise stein. J. Pediat. **46:**648-653 (June) 1955 [St. Louis].

Theoretically, it is improbable that a specific antiserum w be effective in treatment unless given early in the course of t disease, when the causative organism or its toxin is still circul ing in the blood. Once the virus has become attached to t cell it cannot be neutralized by antibody. In measles, the medi day of onset of the complicating encephalitis occurs about days after the beginning of the rash. By then the upper respi tory discharges contain no virus and the antibody titer of t serum is fairly high. It is difficult to see how the use of gamm globulin could affect the course of the complications or det mine their outcome. Of 159 patients with measles encephali under the age of 15 years, 51 were treated with gamma glob lin and 108 were not. About 25% of the children died or d veloped permanent sequelae, and the percentage was the sa in the two groups. No significant differences in results betwee the treated and the untreated were found when compariso were made by age groups or by amount of treatment or b severity. The authors conclude that gamma globulin has n value in the treatment of measles encephalitis.

Study of Illness in a Group of Cleveland Families: VIII. Rela tion of Tonsillectomy to Incidence of Common Respirator Diseases in Children. L. P. McCorkle, R. G. Hodges, G. F Badger and others. New England J. Med. **252:**1066-1069 (Jun 23) 1955 [Boston].

The question of whether an excessively large number of com mon respiratory infections, chiefly common colds, in a chil constitutes an indication for tonsillectomy continues to receiv a variety of answers. This study is based on observations mad of a group of Cleveland families during the period 1948 to 1952 Approximately 230 children were under observation for varying lengths of time. Daily records of the health status of each person were kept by the mothers. The families were visited weekly by field workers, and at the time of illness the patient was examined by a staff physician, who evaluated the illness and obtained throat cultures and other specimens as indicated.

The mothers' records, together with observations by the field workers and physicians, provided the data for this study. Two orts of data are presented. In the first place, the occurrence f the common respiratory diseases among all children of the amily population 3 years of age and older is considered separately for those whose tonsils had been removed and for those whose tonsils were intact; no child under 3 years of age had had tonsillectomy. Secondly, the occurrence of these illnesses mong 26 children who had a tonsillectomy while under study s shown, both for the period of observation before and for he period after operation. It was found that attack rates for he common respiratory diseases among children who had had a onsillectomy were very similar to those among children of comparable age who had not had this operation. There was no ndication of a difference in type of common respiratory disease between the two groups of children. The 26 children who had a tonsillectomy while under observation were found to have had a higher than expected rate of common respiratory disease both before and after operation. Tonsillectomy did not materially alter this incidence.

UROLOGY

Treatment of Acute Traumatic Renal Insufficiency. C. E. Catow. J. Urol. 73:913-920 (June) 1955 [Baltimore].

The clinical management of acute renal insufficiency has improved owing to research carried on during the Korean war on patients with lower nephron nephrosis. The author correlates some of the facts learned while observing the treatment of 50 patients in the Korean war plus a limited experience gained n private practice. He feels that the term acute tubular nephrosis as suggested by Moon more accurately describes the pathological picture; however, the term lower nephron nephrosis has entered medical terminology and will probably remain. The syndrome of acute renal insufficiency may be induced by the following causes: prolonged shock from any cause, trauma, hemoglobinemia, bacterial or chemical toxins, sensitization reactions, radiation, and anoxemia. Whatever the cause, the pathological picture and clinical course are essentially the same. Pathologically there is cloudy swelling and necrosis of the nephron, with the most marked changes in the tubular system. There is precipitation of myohemoglobin, hemoglobin, and other proteins within the tubules, probably producing a mechanical blockage to the flow of urine. The clinical course consists of the oliguric phase lasting about 10 days and the diuretic phase that extends over several weeks. During the former there are profound metabolic changes: elevation of nonprotein nitrogen, acidosis, hyperphosphatemia and reciprocal hypocalcemia, accumulation of toxic metabolites, and, most important, hyperkalemia. The mechanism of hyperkalemia deserves emphasis because of its dire effects and the special efforts required to combat it. Sources of the increased potassium in the blood are: tissue breakdown from extensive wounds, infections, and hematomas; catabolic mechanisms incident to diminished caloric intake; and acidosis with the resulting ionic shift of potassium from the cells to the extracellular fluid. The diuretic phase is characterized by electrolyte depletion and, therefore, continued vigilance is necessary. The nonprotein nitrogen remains high for a long time. These unusual changes are no doubt due to faulty absorptive mechanisms in the regenerating epithelium. Death, when it does not occur from associated wounds or overwhelming infections, may result from pulmonary edema due to overhydration or cardiac arrest secondary to hyperkalemia. The care of these patients is difficult, tedious, and trying, but, once the critical oliguric phase has been overcome, the kidney will probably be restored to normal. This regenerative capacity justifies all efforts. The regulation of the fluid intake deserves special attention during treatment, and it is especially important not to overwhelm the patient with fluid that cannot be excreted. Other important factors are: regulation of acid-base balance; maintenance of caloric intake; small frequent blood transfusions to control anemia and restore depleted proteins; antibiotics and vitamins; dialysis, by means of the artificial kidney in severe cases; and the control of hyperkalemia. Emphasis is placed upon the use of electrolyte antagonists to potassium and particularly the use of adequate amounts of sodium. The author suggests that an osmotic diuretic might be added to Red Cross blood in order to maintain glomerular filtration during the first critical hours of shock after injury; this might possibly prevent the mechanical blockage of tubules by precipitated proteins.

Ureterosigmoidostomy: Collective Review of Results in 2,897 Reported Cases. B. G. Clarke and W. F. Leadbetter. J. Urol. 73:999-1008 (June) 1955 [Baltimore].

The results obtained with four different types of ureterosigmoidostomies are evaluated. Better methods of anesthesia, blood and fluid replacement, intestinal intubation, and antibiotic therapy have permitted more extensive operations and have reduced the need for staged procedures. A clearer understanding has developed of disturbances in electrolyte balance that may occur after diversion of urine into the bowel. The authors present a collective review of 2,897 patients in whom the following four types of operations were performed: (1) a muscularizing operation, (2) direct anastomosis, (3) submucosal tunnel operation, and (4) a combination of submucosal tunnel with direct ureterointestinal anastomosis. Operative mortality varied widely but ureterosigmoidostomy appeared to be quite safe when not combined with pelvic cancer surgery. Pyelonephritis was less common after the combined operation than after other types. Hydronephrosis was less common after the combined operation. Air reflux from the intestine into the ureter was seen by x-ray in 17.5% of the patients in whom a direct anastomosis had been made. It was not observed after tunnel or combined types of operation. Hyperchloremic acidosis occurred in about a third of cases irrespective of type of operation. Analysis of a small group of patients operated on by the combined technique indicated that this complication did not occur in the presence of a postoperatively normal upper urinary tract.

Optimum Time for Orchiopexy in Cryptorchidism. F. Hinman Jr. Fertil. & Steril. 6:206-214 (May-June) 1955 [New York].

Biopsy specimens from undescended testes were compared histologically with normal testes from children of similar ages. The authors found that the undescended testis may be just one manifestation of congenital malformation or of endocrine dyscrasia. Many testes are constitutionally so abnormal that they will not function no matter what sort of hormonal or operative therapy is applied. If the testes are potentially normal, surgical placement must be performed before they are irreversibly damaged by the high intra-abdominal temperature. Physical abnormalities in the testis or primary endocrine abnormalities prevent descent of the testis. The decision for or against treatment of cryptorchism should be made between the ages of 3 to 6 years, because after 6 years, irreversible damage has usually occurred. Giving methyltestosterone linguets will show what effect puberty will have, without the need for waiting while irreversible changes take place. In unilateral cryptorchism, nondescent usually means obstruction, so hormones will seldom be effective. In this condition orchiopexy is the only effective treatment, since the patient's own pituitary hormones have proved sufficient to bring down the testis on the opposite side. Operation is also necessary if the retained testis is associated with a clinically demonstrable hernia. If hormonal stimulation fails, surgery is indicated. Hormones have made orchiopexy easier by enlarging the testis and its adjacent structures. The decision between orchiopexy and orchiectomy will usually be made at the operating table, by consideration of the appearance of the testis and the technical difficulties in bringing it completely within the scrotum. There is little chance for spermatogenesis unless the testis is reasonably normal in development, has not been too severely damaged by staying overlong in the abdomen, and can be brought completely within the scrotum. Tumor of the testis is 20 times more frequent in patients with cryptorchism, so there is an additional argument for either bringing the testis to a site where it can be followed by palpation, or removing it if it appears too maldeveloped to produce an effective number of sperm. Since the retained testis may be irreversibly damaged well before puberty, hormonal stimulation should be tried before the age of 6 years. If it fails, orchiopexy should be performed at once. Many failures can be explained by congenitally defective testes or general endocrine abnormality and are not necessarily the result of the operation.

Diverticula of the Female Urethra: Review, New Procedure for Treatment, Report of Five Cases. E. A. Edwards and R. A. Beebe. Obst. & Gynec. 5:729-738 (June) 1955 [New York].

The mode of origin of diverticula of the female urethra is still uncertain. These diverticula may be congenital or acquired. Conservative or radical treatment can be used, but most investigators prefer the radical methods. All agree that there is likelihood of urethrovaginal fistulas if the diverticular sac is not wholly excised. The authors' surgical technique, which has not been previously reported, consists of separating the vaginal mucosa and fascia overlying the diverticulum and floor of the urethra. The urethra is incised from the external urethral meatus to the site of the opening of the diverticulum into the urethra (provided this is within the distal two-thirds of the urethra). The diverticulum is then excised. The urethra is repaired over a catheter placed in the urinary bladder through the proximal third of the urethra, which has not been incised. There is no interference with urinary continence by this method. Five patients have been treated successfully in this manner and followed for from 3 to 13 years. There have been no failures.

OTOLARYNGOLOGY

Current Medication in Otitis Externa. G. E. Tremble. A. M. A. Arch. Otolaryng. 61:629-637 (June) 1955 [Chicago].

Cultures from patients with diffuse external otitis showed the Pseudomonas aeruginosa to be the chief causative agent. In relatively few ears were gram-positive bacteria such as Micrococcus (Staphylococcus) aureus and albus or nonhemolytic Streptococcus cultured. Although some of the newer antibiotics are effective against many gram-negative and most of the gram-positive organisms, Ps. aeruginosa seems to be the exception. In view of the fact that over 65% of cases of external otitis are due to this organism alone or in combination with some form of Streptococcus, one single drug would not appear to be sufficient. Of all the antibiotics, oxytetracycline orally would seem the most effective to get rid of the gram-negative rods, and sulfadiazine or triple sulfonamides, to take care of the gram-positive Streptococcus organisms. Experience has shown that many patients with external otitis refractory to other forms of therapy responded to 4-amino-2-methyl benzene sulfonamide hydrochloride (Sulfamylon, also known as Marfanil or Mesudin): Sulfamylon in 1% to 4% solutions seemed equally effective, although the weaker solutions required a longer time. Polymyxin B has recently proved effective in otitis externa. It destroys Ps. aeruginosa and is also bactericidal to some gram-positive organisms, including Micrococcus and Streptococcus. It also kills certain fungi and can be given intramuscularly as well as by local application. It is now thought that less than 15% of cases of external otitis are caused by fungus infection. Metacresylacetate is fungicidal and has a local analgesic effect. Dibromosalicylaldehyde solution is effective against gram-negative organisms and fungi. Coparaffinate (Iso-Par) ointment is an effective fungicide and bactericide. Recently acetic acid has been added to many of the drops used for external and middle ear infections. Aluminum acetate with acetic acid (Burrow's solution) is an old-fashioned remedy for otitis externa that has stood the test of time. Another agent present in many of the ear drops currently advertised is urea. Among the ear drops that contain urea are Otosmosan (a liquid containing 20.5% sulfathiazole carbamide incorporated in dehydrated glycerol), Glycerite of Hydrogen Peroxide, and Otomide (a solution containing carbamide, sulfanilamide, glycerin, and chlorobutanol). Ethyleneglycolmonophenylether (Phenoxetol, 2.2%) has been used successfully in otitis externa associated with Ps. aeruginosa infection. A commercial preparation, Neo-Cortef, cortisone acetate with neomycin sulfate sterile suspension, has proved successful in many refractory cases of otitis externa; usually the inflammation, exudation, and itching tend to subside within a few days, but occasionally patients have to use the drug for months. In the treatment of patients who ha otitis externa, unless the underlying cause, such as allergi physical, chemical, endocrine, psychosomatic, and emotion factors, is corrected, there are likely to be recurrent cases this condition.

Vocal Palsies in Children. F. Cavanagh. J. Laryng. & Ot 69:399-418 (June) 1955 [London, England].

The author has observed a number of babies suffering fro so-called congenital laryngeal stridor and has performed 1 laryngoscopies on 107 children. Vocal palsies were found 37, congenital laryngeal stridor in 24, no lesions in 11, su glottic edema (allergic and chronic inflammatory) in 11, pap lomas in 6, vocal nodules in 6, aggressive false cords in 5, scal and corrosive poisoning in 3, congenital web in 2, foreign bo in the larynx in one, and nevus in one. Most of the vocal palsi were unilateral but 10 were bilateral. A surprising fact is th in the unilateral group 23 were on the right and 4 on the le Some cords were completely paralyzed and others only partia paralyzed. There was wide variation in the degree of impro ment, as well as in the time required for any recovery. In thr children who were recovering from unilateral paralysis, t author observed that during moderately quiet breathing the i paired cord showed no movement, though the normal one ducted regularly to a uniform degree. If deeper breathing induced, the good cord abducted further and made three four excursions before the weak cord moved once, and wh the weak cord had made one abduction it would often lie ag in the midposition while the normal cord abducted anot three or four times. At one examination in a little girl, good cord always gave three abductions before the weak moved, and, in a small boy, the normal cord repeatedly ducted five times for each abduction of the recovering c In the third child the pattern varied; there were sometimes t three, or four abductions on the healthy side for one of affected cord. Several patients have been observed for five seven years. The seriousness of the vocal palsies is shown by fact that 11 of 37 children needed tracheotomy—and in these the operation was necessary in the first half year of l Five of the children who were subjected to tracheotomy d A funnel deformity of the lower end of the sternum develo in 10 of the babies. In only 8 of the 37 patients was it possi to find a causal factor. The tomogram can be used to dem strate vocal paralysis after the age of 5 years.

THERAPEUTICS

Clincial Studies on a Vasopressor Agent: Metaraminol (A mine): I. Observations in Normotensive Subjects. M. H. W and W. W. Spink. Am. J. M. Sc. 229:661-669 (June) 1 [Philadelphia].

Although it is unlikely that any sympathomimetic agent have all of the desirable attributes, available information s gested that metaraminol (Aramine) approximated the id agent more closely than did other more commonly used pres agents. The authors observed normotensive volunteers, beca it is difficult to interpret observations made during the st of shock in human subjects. Single subcutaneous, intramuscul or intravenous injections of metaraminol were given on 51 oc sions to 31 subjects. All of the volunteers were normotensi young men free of demonstrable cardiovascular disease. Bef injection they were told to report all subjective effects that f lowed. Their blood pressures were measured while they we supine. After a period of rest, and following two control rea ings before administration of the drug, the blood pressure a pulse rate were measured at 1 to 5 minute intervals short after the injections and at 5 to 15 minute intervals if the dr caused a prolonged effect. It was found that metaraminol m be effectively given subcutaneously, intramuscularly, or intr venously without demonstrable injury to the tissues at the si of injection. A prompt and potent vasopressor response m be obtained with a single intravenous injection of 3 to 10 m of the drug. Subsequent maintenance of blood pressure may secured by the intravenous infusion of 30 to 200 mg. of m taraminol per liter of fluid. When the blood pressure has been sustained, subsequent support may be afforded by single subcutaneous injections of the drug. A prolonged effect may be achieved by intermittent subcutaneous or intramuscular injections of metaraminol. The authors conclude that the drug is a potent pressor agent and is nontoxic.

Direct Arterial Study of the Blood Pressure Response to Cold of Normotensive Subjects and Patients with Essential Hypertension Before and During Treatment with Various Antihypertensive Drugs. J. H. Windesheim, G. M. Roth and E. A. Hines Jr. Circulation **11**:878-888 (June) 1955 [New York].

The cold pressor test was performed three times at 15 minute intervals on 65 volunteers with normal blood pressure and on 60 patients with essential hypertension. The study was repeated in some of the controls in one to five months and in all patients with hypertension in about three weeks. The arterial pressure was recorded directly from the radial artery. In this study, the cold pressor test proved a reliable index of vasomotor reactivity, both of persons with normal blood pressure and of patients with hypertension. Repetition of the test at short and long intervals yielded consistently constant responses of blood pressure for each person. The response did not seem to change with age, although only seven patients of more advanced age (between 41 and 62 years) were included in the control group. The time between immersion of the hand in ice water and the maximal blood pressure was between 50 and 60 seconds in most of the controls and patients with essential hypertension. Therefore, the indirect reading most likely to give the true maximal blood pressure should be made at this time. The response to the cold pressor test was considered abnormal if the increase in the diastolic pressure in response to cold was 15 mm. Hg or more and if the maximal diastolic pressure was 85 mm. Hg or more by the direct arterial method of blood pressure recording (90 mm. Hg or more if measured by the indirect method). Persons with normal basal blood pressure whose diastolic pressure rose more than 15 mm. Hg but whose maximal diastolic pressure was less than 85 mm. Hg by direct measurement were included in the group of normal reactors. With these criteria, 46 (70.8%) of the 65 controls were considered to be normal reactors and 19 (29.2%) normal hyperreactors. The 60 patients with essential hypertension were studied before treatment with various antihypertensive drugs was begun and while under treatment of the hypertension, in order to evaluate the effect of the various antihypertensive drugs on the cold pressor response. The response of their blood pressure to cold before treatment was uniformly greater than that of the controls except among those with the most severe hypertension. It is likely that the vessels of the latter could not constrict more under the added stimulus of cold, since they were already maximally constricted. The ganglionic blocking agents, hexamethonium and pentapyrrolidinium, markedly depressed the response to the cold pressor test, and this observation appeared to be clinically significant. Hydralazine hydrochloride combined with hexamethonium possibly aided in the depression of the pressor response to cold. Protoveratrine, reserpine, and hydralazine in various combinations had no effect on the cold pressor response. That the load placed on the heart by the activity during treatment was greater in the patients with the less severe hypertension than in those with severe hypertension is suggested by the fact that, in the patients with severe hypertension, who were treated with ganglionic blocking agents, basal blood pressure and the cold pressor response were reduced, and hence they had lower maximal pressure during activity than did the patients with milder hypertension, who were treated with the other drugs. Thus the ganglionic blocking agents would appear to have a clinical advantage over the other agents.

Undesirable Side-Effects of Dissolved Pyrazol Bodies in Treatment of Rheumatic Fever. W. Falk and E. Sekol. Wien. klin. Wchnschr. **67**:393-397 (June 3) 1955 (In German) [Vienna, Austria].

In 1953 and 1954, a hemorrhagic diathesis developed in seven children between the ages of 6 and 12 years with acute polyarthritis and rheumatic endocarditis, respectively, in the course of their treatment with Irgapyrine (a proprietary compound containing equal parts of phenylbutazone and aminopyrine), and with Butazolidin (a proprietary preparation of phenylbutazone). Four of the seven children had hematuria, and the three others had hemorrhages of the skin and mucosa. The general condition was poor in only one patient, who had a very low thrombocyte count, although the mechanism of coagulation was not disturbed otherwise. In an attempt to elucidate the side-effects, and particularly the thrombocyte-damaging effect, of the three antirheumatic drugs given to these patients, the effect of Irgapyrine, Butazolidin, and aminopyrine on the blood of rats was studied. Results showed that Irgapyrine, Butazolidin, and aminopyrine exert a mild anemizing effect in rats, but no influence on the leukocytes was noted. Butazolidin, and aminopyrine even more, caused a drop of thrombocytes in the peripheral blood of the rats. Although an undesirable side-effect of Butazolidin and aminopyrine in the sense of thrombopenia was observed in the authors' pediatric patients and in the animal experiments, this does not seem sufficient to explain the development of hemorrhagic diathesis. It is suggested that the hematuria, as well as the hemorrhages of the skin and of the mucosa, in the authors' patients were manifestations of vascular impairment, which most likely was of toxic-allergic type.

Clinical Study on Weight Reduction in Obesity. H. Sapoznik. Am. J. Digest. Dis. **22**:159-160 (June) 1955 [Fort Wayne, Ind.].

Six different formulas of reducing compounds were given a trial in obese patients in order to induce decreased food intake and permit weight reduction. All patients were asked to use 1,000 calorie diet containing approximately 100 gm. of carbohydrate, 20 gm. of fat, and 100 gm. of protein. Amphetamine (Benzedrine) or a proprietary preparation of *d*-amphetamine (Dexedrine), by themselves or in combination with thyroid hormone, produced not only loss of weight but also undesirable side-effects such as nausea, epigastric distress, nervousness, insomnia, dizziness, headaches, palpitations, and constipation. The best reducing combination was a proprietary preparation (Obolip), which contains only a small dose of *d*-amphetamine, a small dose of phenobarbital, lipotropic factors, vitamin B_{12}, and methylcellulose. With this compound mild side-effects, including insomnia, nausea, and epigastric distress, were noted in only 2 of 15 patients. An average weight loss of 3 lb. (1.3 kg.) per week in a six week course of treatment with this drug was obtained. The fact that drugs containing a central nervous system stimulant, such as the amphetamine derivatives alone or in combination with thyroid extracts, did not produce the desired results in weight reduction without undesirable side-effects is in contrast to the reasonably uniform and predictable manner in which the reducing agent containing lipotropic factors for the treatment of infiltration of the liver appeared to work. Thus, the claim of a metabolic approach to obesity made for Obolip was supported by clinical experience.

Tetracycline. R. L. McCorry and J. A. Weaver. Lancet **1**:1102-1105 (May 28) 1955 [London, England].

The structure and antimicrobial spectrum of tetracycline (Achromycin) are similar to those of chlortetracycline and oxytetracycline. All three substances have the same chemical nucleus. Other investigators have observed that tetracycline is as effective therapeutically as the other two preparations and may have certain advantages over these. The authors investigated the clinical usefulness of tetracycline in 87 patients. The sensitivity of pathogenic organisms, isolated from patients in the hospital, to tetracycline was also studied. Minimal inhibitory concentrations of tetracycline for 71 strains of common pathogens are listed. These common pathogens included among others Micrococcus (Staphylococcus) aureus, Streptococcus pneumoniae, Str. hemolyticus, Str. viridans, Escherichia coli, and Friedländer's bacillus. Tetracycline proved effective against both gram-positive and gram-negative organisms. Most of the 87 patients were treated for acute infections of the respiratory system. The clinical response was assessed on the duration of pyrexia, subjective improvement, and objective physical and radiological findings. In pneumococcic lobar pneumonia the results obtained were good and in every respect equal to those after the use of chlortetracycline and oxytetracycline. In acute bronchopneumonia the results were variable and difficult to assess, owing to many other complicating disease processes being present; e. g., cardiac failure. Drug treatment was of necessity started before sputum results were available. Three patients in this group had on admission been started on penicillin therapy without response, and culture of the sputum showed the predominant organism to be Friedländer's bacillus in two of these cases and Hemophilus influenzae in the third. When the treatment was later changed to tetracycline the improvement was dramatic. Generally the results were comparable to those observed with the two analogues. In 10 of 39 patients with pneumonia the results were less than expected. There was a temporary improvement with lessening of the amount of sputum in six of the eight patients with bronchiectasis. The favorable outcome in most of the small number of patients with miscellaneous infections compares with results obtained with the two analogues. The side-effects resulting from tetracycline therapy were mostly gastrointestinal, and their incidence as regards diarrhea was somewhat less than with the two analogues, particularly as regards nausea. The fact that resistant organisms are less likely to develop with the tetracyclines than with penicillin has encouraged some workers to recommend the universal use of the tetracyclines in acute chest conditions. This advantage is somewhat offset by the quicker action and lesser side-effects of penicillin in the infections with sensitive organisms, and for that reason the authors believe that penicillin should still remain the drug of choice in the initial treatment of pneumonia and that tetracycline should be reserved for patients who do not respond to penicillin, or in whom the causal agent has been shown to be penicillin-resistant.

PATHOLOGY

Lung Biopsy in Diffuse Pulmonary Disease. P. A. Theodos, F. F. Allbritten and R. L. Breckenridge. Dis. Chest **27**:637-648 (June) 1955 [Chicago].

Lung biopsy under direct visualization through a small incision was performed with the aid of local anesthesia and with the lung kept expanded by positive pressure oxygen given through a snugly fitting face mask in 50 patients with diffuse pulmonary lesions. In 27 patients, a specific diagnosis was established by histological and bacteriological study of the biopsy specimen. In 26 of the 27 patients, the preoperative diagnosis was confirmed by biopsy. Lung biopsy is of greatest value in diffuse lesions such as those seen in pneumoconiosis, sarcoidosis, metastatic malignancy, and tuberculosis, where a specific pathological entity is present. In these conditions the diagnosis can be readily established, since the abnormal findings are sufficiently well-defined to permit accurate diagnosis. No specific pathological diagnosis was possible in 23 patients. Biopsy served only to rule out the presence of a definite disease entity in these patients. Appreciation of the high prevalence of nonspecific fibrosis and emphysema in clinical practice should make the use of lung biopsy more selective. The procedure was well tolerated by the authors' patients and produced minimal complications, except in one patient who died of cardiac failure secondary to pulmonary insufficiency three days postoperatively. In general lung biopsy affords a rapid, accurate method for diagnosis, determination of the medicolegal status, and determination of the prognosis of diffuse pulmonary lesions. The use of the procedure as a diagnostic aid shortens the period of hospitalization and lessens the cost.

Lipoid Pneumonia Due to Prolonged Ingestion of Mineral Oil. J. B. Meyers and R. L. Griffith. Dis. Chest **27**:677-684 (June) 1955 [Chicago].

Of 355 autopsies performed between 1949 and 1952, 7 (2%) revealed lipid pneumonia as a complicating or concomitant disease in men between the ages of 30 and 74 years who had some serious illness other than lipid pneumonia which was primarily responsible for their deaths. In three of these cases, however, lipid pneumonia was listed as the immediate cause of death, in one case lipid pneumonia was considered to be an important contributory cause of death, and, in the remaining three, lipid pneumonia was an incidental but definite finding. All of the patients had used mineral oil regularly as a laxative. One patient wit a stricture of the esophagus caused by swallowing lye in earl childhood also employed mineral oil to lubricate the bougie used to dilate his esophageal stricture. In one of the cases microscopic examination of the lung revealed a granulomatou proliferative inflammatory process caused by the mineral oil in a case of this type the term chronic pulmonary oleosis seem more appropriate than lipid pneumonia.

Analysis of Focalized Pulmonary Granulomas Due to Coccidioides Immitis. R. L. Alznauer, C. Rolle Jr. and W. F. Pierce A. M. A. Arch. Path. *59:641-655 (June) 1955 [Chicago].*

The "coccidioidal pulmonary residual" is an all-inclusive term applied to the different types of focalized lesions remaining i the lung parenchyma, either temporarily or permanently, afte the resolution of the acute pneumonitis due to the fungu Coccidioides immitis. These focalized lesions can be divided int three major groups: (1) the solid fibrocaseous granuloma, (the fibrocaseous granuloma with cavitation, and (3) the linea fibrotic scar. This paper is concerned with the first two typ of focalized lesions, since the third represents the final sta in healing, and probably has no clinical significance. The autho observed 11 patients with fibrocaseous granulomas of the lun due to C. immitis. All were men, ranging in age from 21 47 years. Six patients probably had acquired their prima coccidioidal infection in southern California, one in the Sa Joaquin Valley, and four in Arizona. In four asymptomat patients, solid lesions were discovered by routine roentgen grams of the chest. None of these had had a history of an acu pneumonitis suggestive of the primary infection with C. immiti Despite thorough clinical investigation, the exact nature of the solitary pulmonary nodules could not be established with ce tainty, and hence they were surgically resected, three by l bectomy and one by wedge resection. Five of the seven patien with cavities had a history of an acute pneumonitis. Althou the possibility of an acute coccidioidal pneumonitis was cli cally suspected at the time, a definite diagnosis by means positive sputum cultures had not been established. Subsequent these patients had sporadic episodes of cough, hemoptysis, lo grade fever, and related symptoms, as well as radiological e dence of a persisting cavity for periods of 4 to 30 mont Although the sixth patient never had a history of an acute pne monitis, subsequent cough and hemoptysis led to medical inv tigation, with discovery of the cavity by chest x-ray. The seve patient never had a history of an acute pneumonitis and w asymptomatic at the time of discovery by routine chest x-ra Wedge resection of the cavity was performed in all seven p tients. All 11 patients were discharged from the hospital either full duty or to civilian status. The coccidioidin skin test was po tive in all 11 patients. Eight also had positive skin reactio to histoplasmin, tuberculin, or both. Coccidioidal compleme fixation tests were performed. The serologic titers were consi ered to be diagnostic of coccidioidal infection in six patien equivocal in one, and negative in the remaining four. The fi patients with either a negative or equivocal serologic test al had positive skin reactions to histoplasmin, tuberculin, or bot Under these conditions, the diagnosis can be made only by t demonstration of the causal organism. The coccidioidal pulm nary residual is not necessarily stabilized; if patent communic tion with an adjacent bronchus is established, a solid granulom may become a cavitary lesion after the evacuation of its caseo contents. This occurred in one of the reported cases. Conversel a cavitary lesion may be converted to a solid granuloma becau of obstruction of its communicating bronchus followed by i spissation of its contents due to the reabsorption of fluid. Despi such occasional mechanical fluctuation in its structure, th coccidioidal pulmonary residual is a relatively bland and innoc ous lesion.

A Clinico-Pathological Study of Diabetic Glomerulosclerosi A. T. Lambie and A. Macfarlane. Quart. J. Med. **24**:125-14 (April) 1955 [London, England].

This study is based on 120 consecutive cases of diabetes mel litus, which came to postmortem examination in the years 195 to 1954 in the pathological service of Edinburgh University The typical glomerular lesion (Kimmelstiel-Wilson lesion) con sists of a focal deposit of hyaline material in the center of a glomerular lobule. Fifty-five of the 120 patients (46%) showed evidence of diabetic glomerulosclerosis, it being slightly more common in women than in men. The 55 cases were graded according to the number of glomeruli involved. Twenty-three patients had grade 1 lesions, that is, less than 25% of the glomeruli were involved; 9 had grade 2 lesions (26 to 50% of glomeruli involved); 9 had grade 3 lesions (51 to 75%); and 14 had grade 4 lesions (over 75% of the glomeruli involved). Poor diabetic control seems to be a factor in the development of this lesion, since it was considerably more common in poorly controlled diabetes. The average duration of diabetes in patients with glomerulosclerosis was 11.7 years and in those without the lesion 7.3 years. The severity of glomerulosclerosis is also related to the duration of the diabetes. Glomerulosclerosis is found most often in patients in the seventh and eighth decades, but the majority of cases of diabetes, with or without renal lesions, also occur in these age groups. In most decades, however, the incidence of the lesion is approximately 50%. The incidence of glomerulosclerosis does not bear any relation to the severity of the diabetes. There were 11 patients with the fully developed clinical syndrome of albuminuria and nephrotic edema. There was no constant histological pattern in the renal glomeruli in these patients. Massive albuminuria appears to be related to the presence of exudative lesions in the glomeruli. Most patients with mild glomerulosclerosis do not show clinical evidence of its presence, and even seven cases of severe glomerulosclerosis were not clinically obvious. Young diabetic patients with glomerulosclerosis have clinical evidence of the lesion more commonly than do elderly diabetics.

Newer Concepts of Experimental Obesity. M. B. Fertman. A. M. A. Arch. Int. Med. 95:794-805 (June) 1955 [Chicago].

A distinction should be made between obesity, a severe, often irreversible disease, and simple overweight, reversible and based on a high ratio of caloric intake to activity or to rate of growth. Obesity takes many forms and is the end-result of various interacting factors, extrinsic and intrinsic. The extrinsic causes of obesity include excessive caloric intake, and perhaps nutritional deficiencies as well; relative inactivity; toxic effects; and possibly stress situations. The extrinsic factors may bring certain of the intrinsic causes of obesity into operation. The intrinsic causes include the constitutional, the diencephalohypothalamic, the endocrine metabolic, and the enzymatic. All of these may be interrelated and interactive. Anywhere along the pathways of the numerous intricate reactions of carbohydrate-fat metabolism, of fat mobilization, and of fat deposition, a disturbance might occur that conceivably could lead to obesity. There is now experimental evidence that in the form of obesity that follows infection or injury, the pancreas is involved. Although perhaps less conclusive, results indicate also that other endocrine glands, the adipose tissue, and enzyme systems play at least a partial role. That hyperphagia or inability to recognize satiety may lead to obesity is demonstrated by experiments with hypothalamic-induced lesions or stimulation. Again, metabolic factors may be concurrently involved.

RADIOLOGY

Radiotherapy in the Management of the Cancer Patient. G. H. Fletcher. Postgrad. Med. 17:490-497 (June) 1955 [Minneapolis].

Physical science has developed a variety of means of delivering ionizing energy: low energy x-rays (45 kv.) used in skin cancers; deep roentgen therapy (200 to 250 kv.); million-volt machines (1 to 2 mev.); cobalt-60 teletherapy (3 mev. equivalent); ultrahard x-rays produced by betatron or linear accelerators; and many gamma ray (x-ray) or beta ray (electron) isotope emitters. This broad spectrum of ionizing tools has increased the range of attack on malignant growths. Radiation produces biological changes through the process of ionization. The radiocurability of certain types of cancers is made possible by the margin of radiosensitivity between tumor cells and normal supporting structures, but radiosensitivity and radiocurability are not identical terms. Tumors such as the lymphomas are very radiosensitive, but rarely radiocurable, because they either generalize quickly, or are a generalized disease to begin with. Keratinizing, squamous cell carcinomas, on the other hand, require very high doses of radiation that approach the limit of tolerance of the supporting structures. Indications for radiotherapy are by no means simple, because it may be a truly curative procedure, or only palliative; and it may be combined with surgery or used alone. If the cancer is radioresistant, as the neurogenic sarcomas and adenocarcinomas of the gastrointestinal tract are, there is no problem since operation is the sole method of treatment. If the tumor is extremely radiosensitive, and probably a generalized disease from the beginning, such as the lymphomas, radiation is undoubtedly the treatment of choice. When one is dealing with squamous cell carcinomas that are amenable to both radiation and operation, there are many determining factors in the selection of treatment. A patient may be in worse condition after an ill-advised course of radiotherapy than he would be in had he not been treated. Radiation necrosis superimposed on growing cancer is more painful than cancer alone. However tempting it is to the physician to do something for the hopeless patient, the greatest kindness is not always to use aggressive therapy.

ANESTHESIA

Chlorpromazine Hydrochloride in Intraocular Surgery. A. B. Nutt and H. L. J. Wilson. Brit. M. J. 1:1457-1458 (June 18) 1955 [London, England].

Eighty patients between the ages of 18 and 80 years who underwent intraocular surgery were anesthetized as follows. One hour preoperatively 0.1 gm. of secobarbital (Seconal) was given by mouth and 100 mg. of meperidine (Pethidine, Demerol) hydrochloride intramuscularly; in some frail patients the secobarbital was omitted. Fifteen minutes before the start of the operation, an intravenous injection of a mixture of 50 mg. chlorpromazine (Largactil) hydrochloride and 100 mg. meperidine hydrochloride diluted to 20 cc. with sterile water was given slowly at the rate of about 1 cc. per minute until the patient fell asleep and could tolerate a lubricated artificial airway. The dose required varied from 20 to 45 mg. of chlorpromazine and 40 to 90 mg. of meperidine. A regional infiltration with procaine was given, coupled with a retrobulbar injection. The patient slept peacefully throughout the operation and the surgeon took as long as he wished without the fear of a restless patient. Of the 80 patients, 60 underwent cataract operations, and 20, operations for glaucoma and corneal grafting. There were no deaths or morbidities, and the patients' postoperative condition was excellent. Although the method was not used in extremely frail patients and those with severe cardiac disease, it was employed in nervous patients and in many with signs of arteriosclerotic cerebral degeneration in whom a purely local technique would have been dangerous. The main advantages of the method are: (1) no cooperation is required from the patient during the operation and for several hours afterwards; (2) it produces a low-tension eye, ideal for intraocular surgery; and (3) the recovery period is extremely quiet and uneventful.

Arterial Pressures in the Extremities of Normal and Hypertensive Persons. M. Riser, J. Planques and A. Couadau. Presse méd. 63:987-989 (June 25) 1955 (In French) [Paris, France].

The authors determined normal arterial pressures for wrists, fingers, ankles, toes, and temporal arteries in various postures and found that in a normal man lying flat the temporal pressure is lower than that in any other peripheral artery, namely 40 mg. Hg. This difference increases in the sitting and standing positions because the pressures in the limbs increase and that in the temporal artery decreases to 35 mm. Hg. The rise in pressure in a hanging limb is generally accompanied by a lasting rise in the oscillometric index. In hypertensive persons the pressure does not rise everywhere in the extremities proportionally to the humeral hypertension. The temporal pressure and the retinal pressure (as measured by Bailliart's method) increases relative to its normal amount more than the pressure in the extremities does relative to its normal amount. This explains the cephalic affinity of the hemorrhage and edema of arterial hypertension.

QUERIES AND MINOR NOTES

PROGRESSIVE MUSCULAR DYSTROPHY

To the Editor:—*I would like information on the use of adenosine triphosphate in the treatment of progressive spinal muscular atrophy.* *M. J. Pond, M.D., Kirksville, Mo.*

Answer.—Some doubt exists in regard to the exact disease referred to. Progressive muscular atrophy is an intrinsic, degenerative disease of the motor system, the anterior horn cells, and sometimes the corticospinal tracts. Usually developing late in life, the disease does not show a hereditary tendency. No form of treatment is known that will change the progress of this disease, as the muscular atrophy is secondary to the nerve cell destruction, and regeneration of nervous tissue is not possible. A fatal termination is to be expected in two to eight years. On the other hand, progressive muscular dystrophy, to which the query probably refers, is a primary degenerative disease of the skeletal muscles rather than of the nervous system. There is a possibility of some regenerative activity in muscle, particularly in dystrophy from deficiencies in vitamin intake content or secondary to virus infection. Unfortunately, this is not the most common type of dystrophic disorder. The more usual type is a hereditary form of dystrophy occurring early in childhood. The muscles may show either pseudohypertrophy and thus appear larger than normal, or they may be smaller and thus become clinically atrophic. Although the final stage of muscular degeneration in the dystrophies is not dissimilar to the atrophy seen when a muscle is deprived of its nerve cell or cut off from its supporting influence, the earlier stages of muscular dystrophy are quite dissimilar to those found in progressive muscular atrophy. There is a preliminary enlargement of the muscle fiber and granular and fibrillary changes in the myofibrils, suggesting a primary defect in the muscle itself. As it is not uncommon in dystrophy to find muscle fibers small but otherwise normal in appearance, it has been assumed that the defect, in part, may be one of maturation of muscle fibers and their supporting tissue. In other words, the fault may be in the muscle nucleus, thus interfering with the normal production of myofibrils.

These and other histological observations have led to attempts at stimulation of muscle cells by chemical means, such as the use of adenosine triphosphate to compensate for defects either in the nucleus or in the muscle fiber itself. It is still to be proved, however, that adenosine triphosphate is the immediate source of energy in the contracting muscles. Indeed, there is some evidence that muscles can in fact do work without the decomposition of an equivalent amount of this drug. Added evidence against the value of adenosine triphosphate as a useful form of treatment is suggested by the failure of a continuous infusion into the brachial artery to show an effect on the amount or rate of blood debt repayment following rhythmic exercise of the forearm muscles. Progressive muscular dystrophy is sometimes confused with polymyositis, but the more rapid onset and the tendency to progress by remission and relapse in the latter disease should make a differential diagnosis possible. The pathological changes in muscles observed in polymyositis are different from those found in muscular dystrophy, so a muscle biopsy is a certain means of differentiation and should be obtained in every case. Those patients, moreover, who respond to treatment with corticotropin or wheat germ preparations are almost certainly examples of polymyositis. If adenosine triphosphate should also stimulate muscle response when used clinically, the possibility of polymyositis, instead of true progressive muscular dystrophy, must always be kept in mind. Adenosine triphosphate is primarily a vasodilator. It has been used in a large number of conditions, such as diabetic neuropathy, liver disease, rheumatic syndromes, heart failure, asthma, and allergy. Reports are not available that suggest the value of this drug in muscular dystrophy. Until further evidence is presented of a clinical nature, a high mineral diet, with yeast, is all that is indicated and even this may not affect the progressive course of muscular dystrophy.

TAKING PICTURES IN OPERATING ROOMS

To the Editor:—*I would like to inquire about taking electronic flash pictures in hospital operating rooms. I am using a Heiland Strobonar V outfit, which is a condenser type of discharge working from an entirely sealed battery. The flash bulb has an enclosed filament sealed in glass and is used for thousands of flashes without changing. I cannot see any danger in using this apparatus in the operating room but would like your opinion to present it to the local operating room committee and to the local fire department. If you consider this apparatus hazardous, please give instructions regarding the use of photographic apparatus that is being used in many operating rooms at present.* *Daniel M. Kingsley, M.D., Alexandria, La.*

Answer.—Electronic photoflash lamps should not be employed in operating rooms of hospitals unless careful precautions for safety are observed before using them. In the "Recommended Safe Practices for Hospital Operating Rooms" of the American Fire Protection Association, Section 8-2-b points out that smoking, open flames, hot materials, photoflash or photoflood bulbs, cautery equipment, high frequency devices, and electronic equipment such as amplifiers, recorders, television cameras, x-ray machines, and certain sterilizing machines introduced into the area of combustible gas accumulations create an extreme hazard to patients and hospital personnel. Section 2-2-d of the same "recommended standards" reads "In anaesthetizing location the hazardous location is to be considered to extend 5 feet above the floor." It is above this 5 ft. level that operating room surgical lights are installed. Although these lights are "explosion proof" photoflood lights can be placed more than 5 ft. above the floor too, which is considered outside the hazardous location. But the photoflood lights are less dangerous than the connecting wires that energize them. Poor connections, such as the extension cords that are strung on the floor to electrify the photoflood lights, are more likely to create the hazardous condition. It is especially true when faulty connections in the plugs permit electric arcs. A surgeon is at the threshold of inconsistency and will jeopardize the safety of his operating room, which is probably equipped with modern safety appliances, by allowing a careless photographer to use sloppy extension cords. Photoflash lamps have connecting wires and electric arcs that might create a hazard. The only true safety measure that would offer adequate protection in the hazardous location is expensive and cumbersome. Place the camera and electronic flash unit within a strongly sealed box similar to that used for undersea photography and pressurize the box with two or three atmospheres of an inert gas such as helium. The inert gas under pressure will exclude the explosive gas in the box. A transparent panel for the lens of the camera, the lamp head of the flash unit, the controls for operation of the camera, and the flash unit from outside the box must be provided. Installing the electronic flash lamp assembly according to these precautionary measures will render the equipment less dangerous and can be used within the hazardous level.

On the other hand, if the electronic flash lamp, including the electrical equipment for control of the shutter, is held and operated well above the 5 ft. level then the flash lamp may be used. Such a location might be in the balcony of an operating room in a teaching hospital. The camera might be equipped with a telescopic lens.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

INTUSSUSCEPTION

To the Editor:—*Five years ago the oldest of five siblings, at the age of 8, had acute abdominal pain, and, on exploratory laparotomy, an intussusception was noted and reduced. Another boy was operated on, in January, 1955, for an exploratory laparotomy because of recurrent abdominal pain, with symptoms of low grade obstruction. An intussusception of the ileum into the ileum was noted and an intestine resection was done. The patient had had the symptoms for three years. At the time of the operation this boy was 8 years old. The younger brother who is age 7 has had similar symptoms for two years and was explored on Feb. 18, 1955. At that time several portions of the ileum were noted to be dilated and extremely thin walled. However, the amount of intestine that would have had to be resected was too extensive, and it was decided to put the patient on medical therapy. What is your advice as to the type of therapy involved? What is the chance of this third patient to develop a localization with intussusception? Should they be considered congenital or hereditary?*

M.D., Montana.

Answer.—The type of therapy for the younger brother whose intestine was not resected would depend on an understanding of the conditions discovered at the time of operation and could not be very well discussed by a person not familiar with the case. However, a continuation of medical therapy would seem wise. A recurrence rate of 2% has been observed in a series of some 700 children who were operated on for intussusception. The finding of an extremely thin-walled ileum in the present patient suggests that a recurrence of the condition is more likely than would be expected in the absence of such a condition. The occurrence of three cases of intussusception in the one family could result from some environmental factor, but this would seem to be unlikely. According to definition, a condition is considered to be hereditary if there is organic resemblance based on descent. Since no information is available regarding the occurence of intussusception in the parental generation, the condition cannot be said to be hereditary. A trait is said to be congenital if it is present at or before birth. The present patients apparently did not exhibit any evidence of their common tendency at birth but may have possessed some common characteristics at that time, which, in each case, led to the development of their common condition. A study of a consecutive series of families in each of which a malformed child was born has revealed that the parents of a child with a congenital malformation are more likely to give rise to another malformed child than would be expected by chance. In a consecutive series of families in which two or more malformed children were born, the defect in the second child was found to be the same as that in the first malformed sibling, in approximately one chance out of two. This is a high frequency when one considers the great variety of congenital defects to which man is heir.

TUBERCULOSIS OF KIDNEY

To the Editor:—*A patient suffers from tuberculosis of the kidney. One kidney was removed, and the patient is under treatment with dihydrostreptomycin and* p-*aminosalicylic acid, six tablets four times a day. The patient vomits often. Is there anything to prevent the patient from vomiting? Is it advisable to change from* p-*aminosalicylic acid to an isoniazid product?*

Ralph L. Icken, M.D., Astoria, N. Y.

Answer.—It seems clear that the patient is sensitive to the quantity of *p*-aminosalicylic acid being given. There are several ways this problem can be met. Try to correct the problem with as little disturbance as possible to the treatment of the patient. It is suggested that the sodium *p*-aminosalicylic acid be changed to calcium *p*-aminosalicylic acid and half dosage be given for a few days. Then if no ill effects result, to continue on to the full dosage. This will correct most problems of burning, nausea, and vomiting. If not, the treatment should be stopped for 10 days and then started again with small doses, 100 mg. a day, gradually increasing the amount until the patient can tolerate the full dosage. It is sometimes effective to use the effervescent salt instead of the simple salt, or effervescent salts may be given with the calcium salt if an effervescent product is not available. One of these methods should correct the condition. The potassium salt has been recommended by Molthan and his associates (*Am. Rev. Tuberc.* 71:220, 1955). There is no special advantage in using the potassium salt, except to desensitize and to restrict sodium intake. Neither will it be necessary to use intravenous medication. In a recent report in the 14th Chemotherapy Conference of the Veterans Administration, the Army, and the Navy, Lattimore has shown that he obtains better results in genitourinary tuberculosis when all three drugs are used, than when only two are used. It would be good practice, therefore, to add isoniazid, 300 mg. a day, to the schedule already in use.

LUPINE BEANS

To the Editor:—*I have a 65-year-old woman patient with moderate diabetes whose fasting blood sugar level runs between 150 and 200 mg. per 100 cc. without insulin. Recently on a trip to Italy she ate lupine beans. A blood sugar level taken two months after her return was 90 mg. per 100 cc. It has never been close to this level in 10 years. What is the action of these beans?*

M.D., New York.

Answer.—There are nearly 7,000 species of legumes. They were mentioned 2,000 years B. C. Lupine beans resemble lima beans, of which the average composition, dried according to "Chemical Composition of American Food Materials" (Bulletin 28, U. S. Department of Agriculture, 1906) is water 10.4%, protein 18.1%, fat 1.5%, carbohydrate 65.9%, and ash 4.2%. The edible portion of fresh lima beans contains water 8.5%, protein 7.1%, fat 0.7%, carbohydrate 22.0%, and ash 1.7%, but as purchased refuse 55%, water 30.8%, protein 3.2%, fat 0.3%, total carbohydrate 9.9%, and ash 0.8%. Mrs. Julia F. Morton, vice-director of Morton Collectanea of the University of Miami, writes as follows: "The seeds of several species of Lupinus are still used as food by the poorer classes of the Mediterranean region after special measures are taken to remove toxic principles which apparently vary with species, locality and season. However, in modern literature, lupines are dealt with primarily as hazards to grazing animals, though certain strains are valued as forage." Lupines have been responsible for many losses in domestic animals, especially sheep, in Europe and America. Eighty species of lupines are recorded from the plains and mountains of America. Obviously it would be unjustifiable to attribute a fasting blood sugar value on a single day after a trip to Italy to what was eaten or done on the trip even though more data were available, such as a knowledge of the quantity and quality of the diet, the amount of exercise taken, and the weight of the patient before and after the trip. An Italian patient reports that lupine beans are often eaten with wine as pretzels are taken with beer. At first the beans are soaked for two days in cold water, and then they are boiled and kept for two weeks. The outer layer of the bean is removed with the fingers, and the bean is eaten. Most likely on the patient's trip to Italy the beans were substituted for a dessert that would have been richer in carbohydrates and of which she would probably have consumed more.

BILATERAL CHARCOT JOINTS

To the Editor:—*A man, aged 54, has bilateral "Charcot joints" of the hips. He was given 8 million units of penicillin in 1947, developing a severe allergy to same. In 1950 the right hip joint enlarged and was explored, removing about a quart of cartilaginous "mice." He was then given two years of continuous treatment with alternating courses of arsenic and bismuth. In 1954 the left joint began to show a similar degenerative process. Consultation resulted in a difference of opinion regarding further treatment. He is Wassermann-fast, and the spinal fluid is negative. 1. Does this patient need more antisyphilis therapy? 2. Does a prosthesis of the head of the femur usually give good results in this condition?*

M.D., Texas.

Answer.—The neuropathic arthropathy (Charcot joint) of tabes dorsalis is not beneficially influenced by any treatment, whether with metal chemotherapy or antibiotics. Nothing will be gained by additional such treatment given to the patient with bilateral Charcot hips. Operative procedures for the relief of this condition in the hip are usually totally unsatisfactory. In the case of Charcot degeneration of such a stable joint as the hip (in contrast to the much less stable joints in the feet, ankles, and knees), a trial of androgenic therapy with testosterone propionate is thoroughly justified. This form of treatment has of course been used for other osseous lesions, such as metastatic cancer and ununited fractures, and has also been used (results unpublished) in a small series of patients, perhaps five or six in number, with Charcot hips. The administration of testosterone in large parenteral doses (100 mg. daily to a total of 3,000 to 4,000 mg. in a course) has, in certain patients with Charcot hips, resulted in increased blood calcium and the deposition of new bone in and around the disintegrating joint. This new bone deposition has created what is, in essence, "a false joint" and has enabled a few patients to get around with braces rather than with crutches. If this form of treatment is undertaken, it should, of course, be with the usual clinical and blood chemical controls of massive androgenic therapy. There is a clinical impression on the part of a number of observers (not verified by actual biostatistical data) that in patients with progressive Charcot joints further breakdown of the joint may be stopped by fever therapy with induced tertian malaria. The most that can be expected from this however, if indeed it occurs, is an arrest of the process without any improvement. In the long run, the management of all Charcot joints is an orthopedic problem.

DIMINISHED SPERM COUNT

To the Editor:—*A young couple each aged 25 consulted me because of infertility. The husband was found to have a sperm count of 200,000 and 400,000 per cubic centimeter on two occasions each preceded by a period of abstinence of 14 days. His history disclosed mumps orchitis at age 12, and physical examination revealed marked atrophy of one testis and less than normal size in the other. Is there any worthwhile treatment for this markedly diminished sperm count? Can the "rebound phenomenon" be applied in this case?*

James F. Kennedy, M.D., Alliance, Neb.

Answer.—The morphology of the spermatozoa should first be studied. If there is found to be a high proportion of abnormal forms, no benefit can be expected from treatment. Attempts to evoke a "rebound phenomenon" in cases of oligospermia are a gamble. The immediate effect of large doses of androgens is to depress still further the already poor spermatogenesis. In some men the sperm count subsequently rises above pretreatment levels. In others a "rebound" fails to occur, and the patient is then left worse off than he was originally. This consultant would hesitate to advise this method in the present case. By centrifuging semen deficient in number of spermatozoa it is possible to obtain material with a comparatively high concentration. This may be used for artificial insemination with a syringe or, alternatively, may be placed in a cervical cap and left in contact with the external os for several hours.

OCCUPATIONAL DERMATITIS

To the Editor:—*I have treated several patients with an occupational dermatitis. They have been working with metals, and several of them have stated that when they come in contact with magnesium, their hands seem to break out. I have tried to find some references to this metal and its effect in the literature, but so far I have not been able to find any.*

Albert Rubin, M.D., Hartford, Conn.

Answer.—This query fails to state the nature of the work involving metal handling, such as metal founding, metal machining, or metal polishing. Although other metals are mentioned as a group, none is named save magnesium. If magnesium founding was the work in question, dermatitis readily might arise not from the magnesium itself (apart from heat burns) but from the ammonium borofluoride or other fluorides commonly introduced into the mold. If machining operations constituted the work, then under some circumstances any occupational dermatitis might derive from cutting oils or other cutting compounds. If the other metals mentioned but not named included nickel, then nickel dermatitis as an allergic manifestation could arise. The characteristic action from occupational employment of metallic magnesium leads to the appearance of subcutaneous gas tumors from implanted magnesium slivers. Otherwise, neither on a contact basis nor allergy is a dermatitis expectable from the manipulation of metallic magnesium.

THROMBOANGIITIS OBLITERANS

To the Editor:—*The Sphygmo-oscillometer reading on one leg of a patient was nearly zero while on the other leg it was almost five. A consultant diagnosed thromboangiitis obliterans and did a sympathectomy about a month ago. The affected leg shows only a little increase in the sphygmo-oscillometer reading but the patient feels that it is better. Would the oscillometric reading ordinarily parallel the actual improvement, or is it normally delayed in its indication?*

O. C. Amstutz, M.D., Irvine, Ky.

Answer.—The oscillometer is a relatively insensitive instrument. Considerable clinical improvement may take place with relatively little change in oscillometer readings. Improvement in collateral circulation would be reflected in higher skin surface temperatures rather than greater oscillometer readings.

TAMPONS

To the Editor:—*Please comment on the use of tampons and sanitary napkins in relation to carcinoma of the cervix. Are there any statistics on this subject?* *M.D., Virginia.*

Answer.—There is no proof to show that the use of tampons or sanitary napkins leads to carcinoma of the cervix. Brand (*Brit. M. J.* **1**:24, 1952) studied 100 women who used vaginal tampons during 3 to 10 successive menstrual periods. Smears and cultures taken before and after each period showed no appreciable change in the bacterial flora of the vagina. Healing of erosions was not adversely affected, and there were no signs of local irritation or inflammation. Although there is no evidence that vaginal tampons are prejudicial to health, a retained tampon may damage the vagina or cervix. Patients should be warned to remove the soiled tampon before inserting a fresh one. Bowles (*Proc. Staff Meet., Straub Clin.* 18:48, 1952) reports three instances of cervicitis, vaginitis, and a foul vaginal discharge due to forgotten vaginal tampons.

MAGNESIUM RODS IN HOT WATER HEATING UNITS

To the Editor.—*Our warm water heating unit is made of galvanized iron. To prevent rusting and corrosion it is equipped with a so-called magnesium rod. Is the water used from such a unit harmful for human consumption?*

M.D., New York.

Answer.—It is a frequent practice to include a magnesium rod inside hot water heating units. This is done to provide selective electrolysis, the magnesium being much more readily attacked than the galvanized or other coating on the iron. Slowly, this magnesium rod disintegrates with a continuous liberation of small quantities of hydrogen gas and magnesium ions into the ambient water. These additives to the water are harmless. The additional amount of magnesium is likely to provide a total less than naturally found in many hundreds of water supplies. So far as known nothing detrimental attends the use of these magnesium rods.

SUPPRESSION OF OVULATION

To the Editor:—*Would the use of an androgen hormone parenterally, when used for the control of dysuria during premenstrual tension, have any adverse effect on ovulation?*

M.D., Illinois.

Answer.—Small amounts of androgens will not interfere with ovulation; however, larger amounts may suppress ovulation, and the resultant menstrual flow will be anovulatory in character. No residual damage will result, for the cessation of therapy will be followed by a prompt recurrence of normal ovarian function. A basal body temperature graph kept by the patient will demonstrate whether the dose of androgens administered has suppressed ovulation in any given cycle.

In the present study, 100 patients with malignant lymphoma, consisting of 65 cases of Hodgkin's disease, 18 of lymphosarcoma, 5 of reticulum cell sarcoma, and 12 of unclassified lymphoblastoma, were treated with either nitrogen mustard or triethylene melamine. One hundred eighty-nine courses of the drugs were given. Nitrogen mustard was given to 68 patients intravenously in doses of 0.1 mg. per kilogram of body weight per day for four consecutive days. Some of the patients were hospitalized, but most were treated as outpatients. This necessitated occasional modifications of the dosage schedule.

COMPLICATIONS

Three types of complications were observed: (1) local tissue reaction following injection of nitrogen mustard, (2) gastrointestinal distress, and (3) hematopoietic depression. The local reactions consisted of cellulitis or phlebitis and were seen in eight patients. They occurred when nitrogen mustard was given without dilution and were eliminated when the nitrogen mustard solution was injected into tubing carrying a freely flowing intravenous infusion of isotonic sodium chloride solution. Gastrointestinal distress, in the form of epigastric burning, nausea, or vomiting, occurred in 52 patients. These symptoms occurred mainly after administration of nitrogen mustard. One patient stated that the treatment was worse than the disease, but most were disturbed only minimally and were relieved by sedation. Various other measures failed to influence the reaction. Recently chlorpromazine [10-(γ-dimethylaminopropyl)-2-chlorophenothiazine hydrochloride] has been useful in the control of gastrointestinal upsets. Patients receiving triethylene melamine were given aluminum hydroxide gel orally before ingesting the tablets, and, while epigastric distress was a common complaint, it never was necessary to discontinue treatment because of this. Hematopoietic depression occurred in 54 of the 100 patients treated. The patients were divided into three groups on the basis of the hematological manifestations: a first of 46 patients, in which peripheral leukocyte or platelet depression was absent; a second of 32 patients, in which the leukocyte count was depressed below 5,000 white blood cells per cubic millimeter; and a third, of 22 patients, in which the leukocyte count dropped below 3,000 or the platelet count below 100,000 cells per cubic millimeter. Eight of the 22 patients with severe depressions experienced alarming complications, and of these died. Detailed bone marrow studies were obtained on three of the patients and revealed marked atrophy of the normal marrow elements.

The incidence of complications did not appear to be related to the specific disease process. Five of the serious depressions occurred in the 65 cases of Hodgkin's disease (8%), two in the 18 cases of lymphosarcoma (11%), and one in the 12 cases of unclassified lymphoblastoma (8%). Previous treatment with irradiation or chemicals was the factor most directly related to the occurrence of peripheral blood depression (see table). A second factor of importance was the general condition of the patient. The bone marrows of those patients who were debilitated or had widespread disease were affected most by the medication.

Sixty-eight patients were treated with nitrogen mustard. Twenty-four of them had had no previous treatment, and 13 of the 24 (54%) showed no significant blood change. Ten of the 24 patients (42%) developed a moderate white blood cell depression (count below 5,000 per cubic millimeter), and only one patient's white blood cell count fell below 3,000 cells per cubic millimeter (4%). This patient was in a debilitated state when his treatment was begun. Forty-four patients had had previous treatment, with irradiation, nitrogen mustard, or triethylene melamine, and 22 (50%) showed no significant blood change. Thirteen (29%) developed a moderate bone marrow depression, while nine (21%) developed serious depressions. Of these nine patients, two died and another had a serious hemorrhage but recovered. The others recovered without complications.

A total of 44 patients were treated with triethylene melamine. Nine had had no previous treatment. Only one, a patient with widespread disease, developed a serious white blood cell depression (11%). Thirty-five patients had had previous irradiation or nitrogen mustard therapy. Seventeen (49%) showed no significant blood change. Moderate peripheral blood depression occurred in 7 (20%), while serious depression was seen in 11 patients (31%). In the latter group, three died, two had severe hemorrhage, and six made an uneventful recovery. Twelve patients had bone marrow depression after triethylene melamine therapy. Initial courses of 1 mg. per day for 21 days did not cause any significant blood change in any of 23 patients. Second courses of 1 mg. per day caused serious bone marrow depressions in four of six patients (66%). Five milligrams per day, during either initial or second courses, caused serious depression in 8 of 22 patients (36%). This occurred after an average of 38 mg. of the drug had been given and seemed more related to the total dose given than to the spacing of the doses within the schedules followed. In all eight alarming hematopoietic depressions were encountered. One massive hemorrhage and two deaths followed nitrogen mustard therapy. Two massive hemorrhages and three deaths followed triethylene melamine therapy.

Effects on Leukocyte Count of Nitrogen Mustard and Triethylene Melamine Therapy

Drug	No. of Patients Treated	Count Above 5,000		Count Below 5,000 and Above 3,000		Count Below 3,000	
		No.	%	No.	%	No.	%
Nitrogen mustard							
No previous therapy	24	13	54	10	42	1	4
Previous therapy	44	22	50	13	29	9	21
Triethylene melamine							
No previous therapy	9	6	66	2	23	1	11
Previous therapy	35	17	49	7	20	11	31

In our experience nitrogen mustard and triethylene melamine proved to be effective drugs. Eighty-one per cent of the patients treated improved, 14% showed no improvement, and in the remaining 5% the effect could not be evaluated. In the patients who died as a result of the marked hematopoietic depression and came to autopsy, active malignant lymphoma still was present.

REPORT OF CASES

CASE 1.—A 40-year-old white male had Hodgkin's disease manifested by cervical and mediastinal adenopathy. He was treated extensively with roentgen rays and received two courses of nitrogen mustard. Eighteen months after the second course of nitrogen mustard and nine months after the last roentgen ray treatment, he was given a third course of nitrogen mustard, 0.1 mg. per kilogram of body weight daily for four days. His pretreatment blood cell count showed 5,700 white blood cells and 250,000 platelets per cubic millimeter. Forty days after the beginning of this therapy, while in another city, he had massive melena and required repeated transfusions. He recovered from this episode but continued on a downhill course and died three months later.

CASE 2.—A 29-year-old white male had Hodgkin's disease manifested by widespread adenopathy, hepatomegaly, weight loss, chills, and fever. He was treated with nitrogen mustard and irradiation. Although seriously ill, he was given 0.1 mg. per kilogram of body weight of nitrogen mustard daily for three consecutive days. Ten days after the beginning of this therapy, the leukocytes decreased from 3,150 to 1,400 per cubic millimeter and the platelets from 270,000 to an estimated "very few." Despite administration of a total of 75 mg. of corticotropin, he died 20 days after the beginning of the last treatment.

CASE 3.—A 20-year-old white female had Hodgkin's disease manifested by enlarged cervical and mediastinal lymph nodes. She was treated with two courses of irradiation and one course of nitrogen mustard. Six months later, even though her condition was precarious, a second course of nitrogen mustard, 0.04 mg. per kilogram of body weight per day for four days, was given. Three weeks later she developed a leukopenia (1,300 cells per cubic millimeter). She then was given 40 mg. of corticotropin daily for 19 days and made clinical improvement. At this time, her white blood cell count was 2,000 cells per cubic millimeter and she again was given nitrogen mustard, 0.1 mg. per kilogram of body weight daily for four days. Ten days after this treatment was begun, her white blood cell count had dropped to 100 cells per cubic millimeter and practically no platelets could be found. She died three days later, after massive hemorrhages.

CASE 4.—A 30-year-old white female had Hodgkin's disease manifested by enlarged cervical, axillary, and mediastinal lymph nodes. She received two courses of nitrogen mustard. This was followed with roentgen rays over a two year period. Pulmonary infiltration developed, and she was given a total of 35 mg. of triethylene melamine, 5 mg. every three days. Nineteen days after treatment was begun, her white blood cell count had dropped from 17,700 to 2,900 cells per cubic millimeter and the platelets from 540,000 to 370,000 per cubic millimeter. She was hospitalized elsewhere and died 53 days after the beginning of the therapy.

CASE 5.—A 30-year-old white female had Hodgkin's disease manifested as a left upper pulmonary lobe tumor, which was diagnosed by exploratory thoracotomy and biopsy. She was given a tumor dose of 3,000 r of roentgen rays followed by 35 mg. of triethylene melamine, 5 mg. every three days. Twenty days after the start of therapy with triethylene melamine, her white blood cell count had dropped from 6,700 to 1,800 and the platelet count from 290,000 to 120,000 per cubic millimeter. She developed massive gastrointestinal hemorrhages and epistaxis, which required transfusion of 7 liters. She recovered from this episode after six weeks of hospitalization.

CASE 6.—A 38-year-old white male had lymphosarcoma manifested by generalized lymph node enlargement and weight loss. He had been given irradiation on three occasions. He was given a total of 35 mg. of triethylene melamine, 5 mg. every three days. Twenty-six days after this treatment was begun, the leukocytes decreased from 35,000 to 3,000 and the platelets from 270,000 to 80,000 cells per cubic millimeter. He was hospitalized two days later because of the pancytopenia, which required 16 blood transfusions. Three months later the white blood cell count was 9,950.

CASE 7.—A 41-year-old white female with reticulum cell sarcoma of the tonsil and neck was first treated with irradiation. Fourteen years later, a large nonresectable abdominal mass showed a similar histological picture. She was given a cours of 21 mg. of triethylene melamine. At the close of this treatment her white blood cell count was 4,600 and her platelet coun 400,000 cells per cubic millimeter. The abdominal mass did no diminish in size, and, two weeks later, she was started on furthe triethylene melamine therapy in 1 mg. daily doses. After 10 mg had been taken, she developed nausea, petechial hemorrhages melena, and hemoptysis. She died 23 days after the beginnin of the final therapy from a cerebral hemorrhage.

CASE 8.—A 43-year-old white male had lymphoblastom manifested by enlarged cervical lymph nodes. He was treate with roentgen rays and showed a satisfactory response. Eigh months later, he received 35 mg. of triethylene melamine i three weeks' time. Twenty-six days after treatment began, h white blood cell count had fallen to 2,250 and the platelet cour to 17,600 cells per cubic millimeter. By 40 days after treatmer began, his count had risen to 8,300 white blood cells and 81,00 platelets. Because of advancing disease, triethylene melami therapy was resumed at a dosage of 5 mg. twice a week. Aft he had received 35 mg. in this second course, his white bloo cell count fell to 1,850 and his platelet count to a very few ce per cubic millimeter. He died 75 days after the beginning initial therapy of agranulocytosis, which was confirmed autopsy.

COMMENT

Nitrogen mustard and triethylene melamine ha been found to be effective and convenient tools in t treatment of the malignant lymphomas. However, the drugs may cause severe and uncontrollable depressi of the hematopoietic system. We encountered 54 i stances of significant depression in the cellular elemen of the blood in the 100 patients to whom 189 courses either nitrogen mustard or triethylene melamine we given. The toxicity of these drugs varied inversely wi the condition of the patient and the intensity of previo treatment. The patients with early disease, almost wit out exception, tolerated initial courses of either drug, the amounts we gave, without appreciable drops in t blood cell count. However, patients with widespre disease or who received prior therapy with roentg rays, nitrogen mustard, or triethylene melamine did r tolerate the drugs well. They exhibited alarming dro in the number of blood elements, both circulating a marrow, after receiving minimal doses of the drugs. is imperative that the hematological status of all patie be known before treatment is instituted and that freque checks be made as treatment progresses. Hematopoie depression may be observed 10 to 51 days after the b ginning of treatment, and careful observation shou continue for at least this period. Once a serious leuk penia or thrombocytopenia has occurred the only effe tive treatment is repeated transfusion. The hematolo cal picture was not altered significantly by either cor sone or corticotropin. Eighty-one per cent of our p tients improved under treatment; however, residual m lignant lymphoma was present in all of the patients w came to autopsy.

SUMMARY

When nitrogen mustard (Mustargen) was admini tered daily in a dosage of 0.1 mg. per kilogram of bo weight for four days to 24 patients who had not receiv previous treatment, serious bone marrow depression w seen in only one instance (4%), and this occurre in a patient with widespread disease. However, whe nitrogen mustard was given in the same dosage to 4 patients who had previous treatment with radiatio nitrogen mustard, or triethylene melamine (TEM nine instances (20%) of serious bone marrow depression occurred. Similarly, when triethylene melamine was given to nine patients who had no previous therapy, only one instance (11%) of serious bone marrow depression occurred. When triethylene melamine was given to 35 patients who had previous treatment, 11 instances (31%) of thrombocytopenia and/or leukopenia occurred. Of the 100 patients treated, 8 had alarming bone marrow depressions, and 5 of these died.

1819 W. Polk St. (12) (Dr. Mrazek).

BOWEL FUNCTION AFTER COLECTOMY FOR CANCER, POLYPS, AND DIVERTICULITIS

Richard C. Lillehei, M.D.
and
Owen H. Wangensteen, M.D., Minneapolis

Subtotal or total colectomy for certain colic lesions was described by one of us in 1943.[1] This procedure has been applied with increasing frequency to lesions of the left half of the colon in succeeding years. On the surgical service of one of us (O. H. W.) since 1946, subtotal or total colectomy has come to be the surgical procedure of election in cases of cancers of the left colon as well as for multiple polyps of the colon. Moreover, in many instances of diverticulitis, a total or subtotal colectomy has been done in which multiple diverticula extended into the upper reaches of the descending colon or well into the transverse colon. Undetected polyps have been uncovered by these wider excisions, and, in one instance of diverticulitis, an occult cancer was found in the cecum when the operatively removed specimen was opened. In fact, total or subtotal colectomy has come to be the operative procedure of choice whenever colectomy has been undertaken for any lesion of the colon distal to the hepatic flexure. Only the necessity of excising a segment of ileum in cecal cancers to insure removal of the potential lymphatic drainage area has made caution necessary in extending the primary excision in cancers of the cecum to include the greater portion of the left colon. As the experience of this study suggests, however, it is essentially the extent of excision of ileum that determines whether diarrhea will follow; excision of the colon per se apparently is not attended by diarrhea extending long beyond the period of hospital stay. In fact, it is more usual for patients to leave the hospital after total colectomy having few or no imposed dietary strictures and reporting having not more than two stools a day.

It is the purpose of this paper to report the results of this study and, in particular, to report upon the influence of total or near total colectomy upon the bowel habits of patients. The study is primarily concerned with the presence of occult or undetected polyps or carcinomas, which prompts our interests in extension of excision of the colon over the more conventional hemicolectomy or segmental resection. That such lesions may be overlooked in the latter type of operation is becoming increasingly evident. Moreover, it is also obvious that when such occult lesions are left behind, subsequent surgery is necessitated and the cure rate for cancer is diminished. Most students of colic cancer now believe that the majority of adenocarcinomas of the colon develop from preexisting polyps.

It has been frequently stated that approximately 75% of polyps and cancers of the colon and rectum are within reach of the sigmoidoscope. It has been the ambition of many to extend this range. Theoretically, it should be feasible to visualize the colon preoperatively as far as the splenic flexure. Hedin,[2] in 1939, devised such an instrument, but it has not come into common use. Many surgeons employ a proctoscope at the operating table to inspect the remaining colon after a subtotal resection; unfortunately, this procedure is handicapped too frequently by poor visualization. This is especially true in the right half of the colon, which is more difficult to prepare preoperatively. Also, there is the ever-present danger of fecal contamination of the operative field. As the most reliable alternative, we have come to employ routinely more extensive excision of the colon as a preferable solution when dealing with polyps or carcinoma of the colon. This experience forms the basis for this study.

Polyps of the colon and rectum were once considered a rarity. Allingham,[3] in 1888, commented on the relative infrequency of polyps in his experience in 4,000 proctoscopies. Recently, more accurate observations on the true incidence of polyps in the adult population have been made. In a recent report [4] from the Cancer Detection Center of the University of Minnesota, 17% of 3,364 patients examined over a three year period were found to have one or more polyps of the colon and rectum. All the patients in this entire group were between the ages of 45 and 64 years. Obviously, age is an item to be considered when the incidence of rectal or colic

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Figure 1 is reprinted from *Surg., Gynec. & Obst.* **99**: 257, 1954, with permission of the publisher. Figure 2 is reprinted from Intestinal Obstructions, ed. 3, Springfield, Ill., Charles C Thomas, Publisher, 1954, with permission of the publisher.

1. Wangensteen, O. H.: Symposium on Surgical Management of Malignancy of Colon: Primary Resection (Closed Anastomosis) of the Colon and Rectosigmoid Including Description of Abdomino-Anal Methods for Restoration of Continuity Accompanying Excision of Carcinoma of the Rectal Ampulla, Surgery **14**: 403-432, 1943.

2. Hedin, R. F.: Polypoid Disease of the Colon: Proposed Surgical Procedure in Selected Cases, Surgery **5**: 161-174, 1939.

3. Allingham, W.: Diagnosis and Treatment of Diseases of the Rectum, ed. 5, London, J. & A. Churchill, Ltd., 1888.

4. Enquist, I. F., and State, D.: Rectal and Colonic Polyps, Surgery **32**: 696-703, 1952.

polyps is discussed. Multiple carcinomas of the colon occurring simultaneously or successively in time have long been recognized by surgeons interested in this problem and constitute a definite problem in surgical treatment of malignancies of the colon. Excluding the condition of disseminated or familial polyposis, which is not being considered specifically in this paper, Bargen and Rankin [5] found two or more carcinomas in 4.6% of

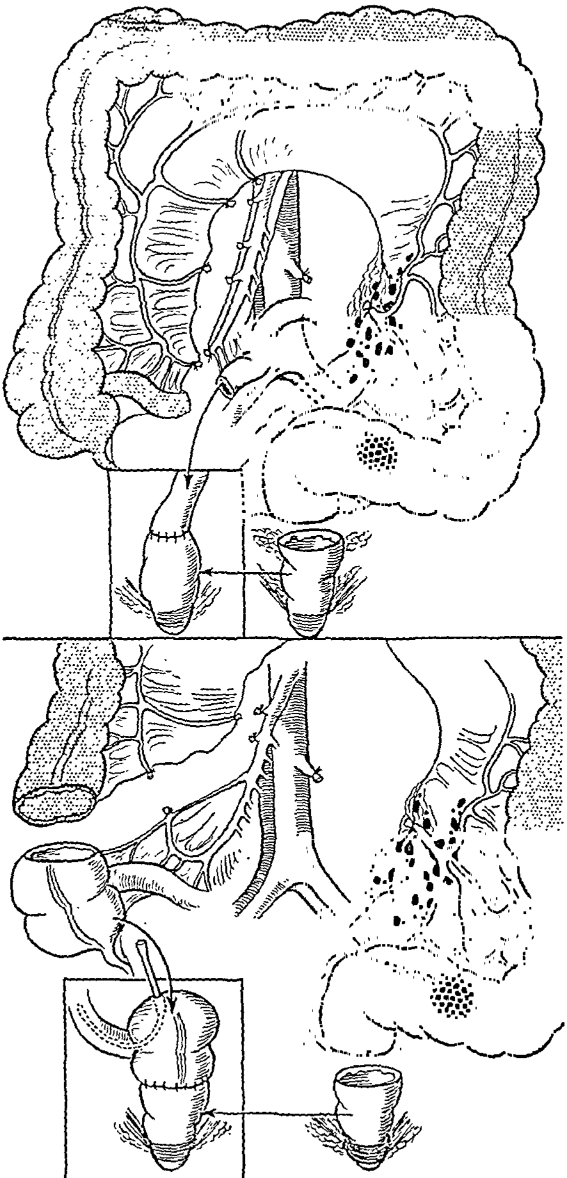

Fig. 1.—Extent of operation in total or subtotal colectomy for cancer of colon beyond hepatic flexure.

344 cases of carcinoma of the large intestine. Many similar reports that document this evidence are to be found in the literature. In 1942, Mayo and Schlicke [6] reported 131 autopsies performed within three weeks after operations for carcinoma of the colon and rectum. Forty-nine of the 131 cases (37.4%) had polyps in the remaining colon. There was a second carcinoma present in the residual colon in seven cases (5.3%).

STUDY GROUP AND METHOD

All patients included in the present group had a total or near total colic resection including, in many instances, resection of varying amounts of terminal ileum. The period of the study extended from Jan. 1, 1946, to April 1, 1954. Patients who had a total or near total colic resection for lesions other than polyps or carcinoma also were included in the group. This was done for the sake of completeness as well as for evaluation of postoperative function of the bowel after total or subtotal colectomy under a variety of conditions. The only patients excluded from this study were those in whom a palliative resection was undertaken or in whom subtotal or total colectomy was undertaken for ulcerative colitis. Both of these conditions pose special problems in the evaluation of postoperative function of the bowel after colectomy; however, the hospital mortality rate for palliative

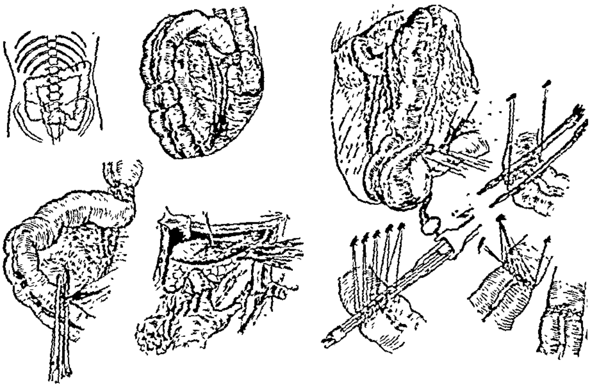

Fig. 2.—Technique of total colectomy for cancer or other lesions the colon. The anastomosis is made by the closed method, employing single row of fine silk sutures.

resections or for ulcerative colitis did not exceed that the cases reported herein. In some cases the cecum a 2 or 3 cm. of ascending colon were preserved in an tempt to evaluate the importance of the ileocecal val in the prevention of postoperative diarrhea. The col resection was done in one stage; a closed end-to-en single row anastomosis was made in all instances, method that has been employed in this clinic for almo 15 years. The majority of the patients had no speci preparation of the colon prior to surgery other than th administration of an enema. An examination of the lite ature [7] suggests that the open anastomosis is being use more frequently again in the United States.

In the early years covered by this study the decisio to perform a total or near total resection including vary ing amounts of terminal ileum was usually made at th operating table. This decision was based on one or bot of the following reasons: (1) the presence of multipl lesions involving several segments of the colon, such a multiple carcinomas, polyps, or diverticula, with diver ticulitis scattered throughout the colon or spread to th colon from malignancies of adjacent organs; (2) th finding of an unsuspected polyp or a second cancer i

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[5] Bargen, J. A., and Rankin, F. W.: Multiple Carcinomata of the Large Intestine, Ann. Surg. 91: 583-593, 1930.

[6] Mayo, C. W., and Schlicke, C. P.: Carcinoma of the Colon and Rectum: A Study of Metastasis and Recurrences, Surg., Gynec. & Obst. 74: 83-91, 1942.

[7] Ochsner, A.: Advances in Surgery of the Colon, Am. J. Surg. 88: 685-697, 1954.

the excised segment of colon near the proximal line of resection in lesions of the descending colon or near the distal line of resection in lesions of the right colon or transverse colon. The excised segment of colon was brought directly to the pathologist, who would inspect the opened specimen and report his findings to the surgeon, who was also shown the opened cylinder of colon. The surgeon then decided whether further resection was required. The second finding enumerated above, namely, finding of polyps near a line of resection, was the most frequent indication for enlarging the extent of the colectomy. In the more recent years covered by the period of this study, and instructed by our accumulative experience, one of us (O. H. W.) has come to feel that, in the standard-risk patient, primary total or subtotal colectomy is the operation of choice in all colic cancers beyond the hepatic flexure of the colon, inasmuch as no ileum need be excised. In carcinomas of the right colon, however, it is always necessary to remove a sizable segment of the terminal ileum in order to insure adequate removal of the lymph drainage area —a consideration that has made us more reluctant to accept total or subtotal colectomy as a primary operation for cancer of the cecum or ascending colon. In a few patients, a segmental colectomy or hemicolectomy had been done previously at this or other hospitals for a carcinoma and/or polyps of the colon. These patients required reoperation and removal of the remaining colon because of polyps or a new primary carcinoma in the remaining colon. Table 1 indicates the primary diagnosis in each of the 73 patients undergoing total or subtotal colectomy. In patients with carcinoma the lesions were located at 10 cm. or more from the anus. In those patients whose lesions necessitate abdominoperineal excision of the rectum, we do not as yet advise ileostomy but continue to make the colostomy in the descending colon or in the transverse colon, as suggested by State.[8] Twenty of the cancers were in the left colon, 14 were in the transverse colon, and 9 were in the right colon. Many of the cases of carcinoma were accompanied by polyps in close proximity. Of the 12 patients with polyps, only 2 could be classed as having polyposis, although there was no familial history of polyposis in either patient. There were 10 cases of diverticulitis, and the remaining 8 cases were of a miscellaneous nature.

Function of the bowel after surgery was classed as good, fair, or poor. Good function was interpreted to mean a return to normal or near normal bowel habits, with one to three bowel movements each day and stools of fairly normal consistency. The term fair function was employed to suggest that the patient had four to six movements a day and that the stools usually were of a loose consistency. Poor function included those patients who had more than six bowel movements per day; the stools of these patients were usually watery. Those patients in whom function of the bowel fell between the criteria outlined above were placed in the lower rather than in the higher classification. All but two patients have been followed since surgery. The interval of observation varies therefore from eight months for the most recent cases to eight years for the earlier cases in the series. Almost all the patients were interviewed personally; the remainder were contacted by questionnaire. The results of interviews, the questionnaire, and previous notations on the clinical records following postoperative outpatient visits to the clinic were integrated to obtain the necessary information.

FINDINGS

Table 2 contains an analysis of 60 of the 73 cases as to level of anastomosis, length of terminal ileum removed with the colon, and resulting function of the bowel. The level of the anastomosis was noted at the time of surgery, and the proctologist usually indicated the observed location of the anastomosis in subsequent proctoscopic examinations undertaken when the patient revisited the clinic at six-month intervals. The rectum is considered to be 13 cm., on the average, in length. The term iliac colon is employed in this clinic in accordance with conventional anatomic nomenclature to designate that portion of the colon beginning just above the rectum (third sacral vertebra) that becomes the sigmoid colon at the level of the sacral promontory. The iliac colon has no mesentery and is usually 6 to 8 cm. in length. All anastomoses included in this report were made either with inclusion of the rectum or the iliac colon.

TABLE 1.—*Diagnosis in Seventy-Three Patients Undergoing Colectomy*

Condition	Patients, No.
Carcinoma	43
Left half of colon	20
Transverse colon	14
Right half of colon	9
Polyps	12
One or more	10
Polyposis	2
Diverticulitis	10
Miscellaneous	8
Carcinoma of the ovary	3
Carcinoma of the stomach	2
Retroperitoneal fibrosarcoma	1
Pseudomyxoma peritonei	1
Mesenteric thrombosis	1

TABLE 2.—*Results of Anastomosis Between Ileum and Iliac Colon or Rectum in Sixty Patients Undergoing Total or Subtotal Colectomy*

		Good		Fair		Poor			
Level from Anus, Cm.	Total No. Patients	No.	Amount Resected, Cm.	No.	Amount Resected, Cm.	No.	Amount Resected, Cm.	Lost	Deaths
17-21	27	16	Less than 30	5	76 70 38 36 12*	3	62 51 40	1	2
13-16	19	14	Less than 30	3	76 38 34	1	42	1	..
7-12	14	9	Less than 30	1	15†	2	70 67	..	2

* This 82-year-old patient is classed as having only a fair result because, although she has only 2 to 3 bowel movements a day, she complains of incontinence.

† This patient has had some dysfunction of the colon despite resection of less than 30 cm. of terminal ileum. She has 4 to 5 bowel movements a day.

The patients were almost equally divided as to sex, and the average age was 60 years. Anastomosis between ileum and colon, at the level of 17 to 21 cm. from the anus, was done in 27 patients. In 16 of these patients the resulting function of the bowel was good; in 5 it was fair; and in 3 the present function of the bowel is poor. In the group with only fair function, 76, 70, 38, 36, and 12 cm. of terminal ileum, respectively, was resected along with the colon. The patient in whom only 12 cm. of terminal ileum was removed with the colon is an 82-year-old woman who complains now of some incontinence, although she has only two to three bowel movements each day. For this reason she was classed as having only a fair result. The three patients having poor function had 62 cm., 51 cm., and 40 cm. of terminal ileum, respectively, resected with the colon. One patient cannot be traced, and there were two postoperative deaths in this group. One of these occurred on the 10th day and was due to peritonitis. The other death occurred on the 49th postoperative day and was complicated by the occurrence of a persistent biliary fistula resulting from a coincidental complementary cholecystectomy; persistent severe diarrhea and a poor cardiac status from an antecedent coronary thrombosis were the important contributing factors in the lethal issue. At the postmortem examination the patient was found to have an unrecognized stone in the common bile duct. Operative intervention for closure of the complete biliary fistula had been contemplated and might have saved the patient. Anastomosis of ileum and iliac colon between 13 and 16 cm. from the anus was done in 19 patients. Postoperative function of the bowel has been good in 14 patients, fair in 3, and poor in 1. One patient was lost to follow-up. Seventy-six, 38, and 34 cm. of terminal ileum, respectively, were removed with the colon in each of the three patients classed as having a fair result. One patient who had 42 cm. of terminal ileum resected with the colon has had a persisting diarrhea. Fourteen ileoproctostomies between 7 and 12 cm. from the anus were done. Nine patients have had a good result. One patient has had a fair result, although only 15 cm. of terminal ileum was removed with the colon. This patient is one of two patients who has had some dysfunction of the bowel, despite resection of less than 30 cm. of terminal ileum with the colon. Two patients showing poor results had 70 and 67 cm. of terminal ileum, respectively, removed with the colon. There were two deaths. One patient died postoperatively of clinical hepatic failure on the eighth postoperative day. No postmortem examination was permitted. The other patient died on the seventh postoperative day of suppurative pancreatitis and congestive heart failure. The suture line was completely intact.

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[8] State, D.: Combined Abdominoperineal Excision of the Rectum—A Plan for Standardization of the Proximal Extent of Dissection, Surgery 30: 349-354, 1951.

TABLE 3.—*Incidence of Occult Polyps and Cancer*

Condition	Cases No.	Cases %
Polyps	55	100.0
Occult	21	38.0
Cancer	43	100.0
Unsuspected simultaneous (occult) cancer remote from primary cancer	3*	7.0
Successive colic cancers	5	11.6
Total	8	18.6

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* An additional unsuspected cancer was found in the cecum of one of the patients undergoing colectomy for diverticulitis.

Colectomy with preservation of the ileocecal valve and sphincter was done in 13 patients. This procedure was done only for cases of carcinoma of the left colon or for polyps or diverticulitis. Function of the bowel after anastomosis of the cecum to the iliac colon or rectum, as low as 7 cm. from the anus, was good in all cases. Anastomosis between 17 and 21 cm. from the anus was done in four patients. In one of these it was necessary to resect coincidentally 90 cm. of jejunum; however, no adverse effect on postoperative function of the bowel was seen. In six patients anastomosis between 13 and 16 cm. from the anus was performed, and in three patients the level from the anus was between 7 and 12 cm. There were no postoperative deaths.

In the patients in this series, there were four postoperative deaths, the ages of the patients being 72, 65, 62, and 77 years. The over-all hospital mortality rate was 5.5%. Autopsies were performed on three of the four patients who died. The causes of death were peritonitis, hepatic failure, biliary fistula with common bile duct stone, and acute suppurative pancreatitis and congestive heart failure. All patients (with only two exceptions) having three or less bowel movements per day had either no terminal ileum removed or had less than 30 cm. removed with the colon. Most patients usually had some diarrhea in the hospital, but their length of hospital stay did not seem to exceed the time spent in this hospital by those having the more conventional type of colic resections. The over-all average hospital stay for the group was 14 postoperative days, many patients going home several days earlier. Diarrhea had usually disappeared before the patient left the hospital, and most of the patients established their permanent pattern of bowel function within two to three months after surgery. A few patients continued to improve up to one year, and in no instance did function of the bowel become wors with the passing of time.

Hidden Lesions.—A significant finding, justifying th procedure described herein, has been the finding of un suspected lesions, polyps, and carcinomas, which hav been found in a large number of these patients (table 3 A large number of polyps were found that were n recognized preoperatively when the usual diagnostic pr cedures were used. No polyp was counted as havin been detected by this method of extended excision the colon unless the lesion was found in a segment colon that would not have been removed with employ ment of the conventional segmental colectomy or hem colectomy. Such polyps, located beyond the reach the more conservative procedure of hemicolectom were found in 22 patients. In 21 patients the polyps wer associated with a carcinoma and/or polyps in anothe portion of the colon. The remaining case concerned u detected polyps and an occult cancer encountered durin colectomy performed for extensive diverticulitis. In thi group of 73 patients there were 55 patients who ha polyps or a carcinoma of the colon or both. Thus, 2 of 55 patients (38%) had occult polyps that would hav been missed without the more extensive colectomy. Thi figure agrees closely with the findings of Mayo an Schlicke[6] in their autopsy studies on polyps that re mained in the colon after colic resection for carcinoma

Sixteen of these 21 patients had the unsuspected polyps in the right or the transverse colon, with the larger number in the right colon. The remaining five patients had unsuspected polyps in the left colon, more than 25 cm. from the anus. In these patients the diagnostic procedures employed preoperatively included barium enema in 11 cases and barium enema together with an air contrast study in 11 cases. The average size of the polyps was 1 cm. in diameter, with the range varying between 0.5 to 3.5 cm.

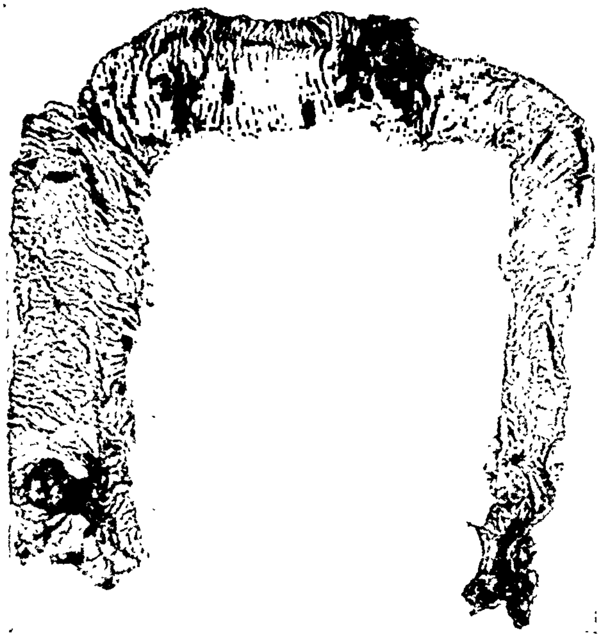

Fig. 3.—Excised colon showing two definite cancers, one in the splenic flexure, the other in the ascending colon. There were also multiple small benign polyps throughout the colon, and the lymph nodes were involved in the area of the cancer in the splenic flexure.

A second carcinoma was discovered in 3 of the 43 patients with carcinoma of the colon (7%). In all three, the second carcinoma was in the cecum or in the ascending colon and accompanied a carcinoma of the left colon, for which operation was primarily undertaken. In none of the three were the second carcinomas detected preoperatively. In addition, in one patient whose case is cited above, operation was undertaken for diverticulitis, and unsuspected polyps were found in the left colon and a small carcinoma of the cecum was observed in the right colon by the pathologist after excision of the colon was done. Neither the polyps nor the carcinoma were recognized in preoperative x-ray studies. In the group of 43 patients with carcinoma of the colon, there were 5 patients who developed a new primary carcinoma of the colon within a period of from six months to 17 years after a previous colic resection. Thus, 8 of 43 patients (18.6%) in whom resection was done for a colic cancer had either simultaneously or successively two independent carcinomas of the colon.

REPORT OF CASES

Case 1.—A 70-year-old man was operated on early in 1954 for a carcinoma of the splenic flexure (fig. 3). A barium enema revealed no other lesions. At surgery, a hemicolectomy including most of the transverse colon was done. On opening the specimen, there were two polyps, 0.5 cm., near the proximal line of resection. For this reason the remainder of the right colon and 10 cm. of terminal ileum were excised also. A lesion could be definitely felt through the cecal wall. In the cecum was a 3 cm. polypoid lesion that proved to be a carcinoma on microscopic section and one additional 0.5 cm. polyp. The patient made an uneventful recovery, and, when last seen six months after his operation, he was having two bowel movements each day.

Case 2.—A 71-year-old man was first seen at this hospital in 1933, at which time a hemicolectomy on the right was performed for an adenocarcinoma of the cecum. Ten centimeters of terminal ileum was excised with the colon. The patient returned at irregular intervals for barium enemas, and in 1949 a filling defect was seen in the transverse colon. A decision to temporize with this finding was made, and he was not seen again until one year later. At that time repetition of the barium enema showed the filling defect to have enlarged, and he was again operated on. A carcinoma and two small polyps were found in the transverse colon. The remaining colon and 9 cm. of terminal ileum were excised, and an ileoproctostomy was done at 12 cm. from the anus. The patient has continued to be able to work, and function of the bowel is normal.

Case 3.—A 51-year-old man was operated on at a clinic in 1951, at which time a segmental resection was done for an adenocarcinoma of the descending colon. In 1952 he was again operated upon at the same clinic, at which time a segment of the transverse colon, together with the splenic flexure of the colon, was excised for polyps. Two of the polyps were reported as manifesting "grade 1" malignant changes. He was first seen here in 1953, at which time he complained of gas pains and an intermittent colic fistula. A barium enema showed an area of partial obstruction near the splenic flexure. He was reoperated on, and the remaining colon, together with 3 cm. of terminal ileum, was excised. On opening the excised specimen, the site of obstruction was found to be at the previous anastomosis. In addition, a segment of transverse colon, 34 cm. in length, was found to be completely studded with small polyps (fig. 4). The ascending colon and lower iliac colon were free of polyps. An anastomosis was made between the ileum and the rectum. At

Fig. 4.—Colon, showing an extensive polypoid lesion, which is entirely benign. Two prior segmental colic resections had been done one year previously.

the present time, 18 months after surgery, he has one to two bowel movements daily and is completely happy with the present situation.

CASE 4.—In 1950 a 62-year-old man was hospitalized for the excision of a polyp in the descending colon. There was also evidence of an extensive diverticulitis of the colon. The distal third of the transverse colon, the entire descending colon, and the greater portion of the sigmoid colon were excised. The polyp in the descending colon was found, together with smaller polyps at either end of the specimen. An additional length of colon was then excised on the proximal side, reaching well into the ascending colon. A polyp was found near the proximal site, and the segment was excised, together with 2 or 3 cm. of the ileum. On the distal side the excision was extended to the level of the sacral promontory. There were no additional polyps in this latter segment. The pathological diagnosis was multiple polyps and diverticula throughout the colon and adenocarcinoma of the cecum. The patient has remained well, and there has been no diarrhea.

CASE 5.—On Jan. 5, 1954, a 34-year-old man was admitted to the University Hospital because of polyposis of the colon. He gave a history of bleeding from the rectum since October, 1953. At that time, he underwent proctoscopic examination. Fulguration of several polyps was carried out to a distance of 20 to 22 cm. from the anal orifice. After this procedure the colon became perforated, and the patient was operated upon for closure of the site of perforation. He subsequently was sent here for excision of the polyps in the colon. Several visible polyps in the rectum within the reach of the proctoscope were destroyed by fulguration, except for one large polyp at 16 cm. from the anus. It was felt that this polyp was too large for fulguration. An air contrast study showed several polyps throughout the colon, particularly in the descending colon. A total colectomy was done, excising all the colon save for a small cuff of the cecum at the ileocecal juncture. It was estimated that not more than 8 square centimeters of cecal mucosa remained. This area was spared so that the ileocecal valve would be left and diarrhea avoided. The appendix was excised, and an end-to-end anastomosis was made between the midrectum, 8 cm. from the anus, and the cecum by the closed technique. After the appendix was excised, a small catheter was pushed through the ileocecal valve into the ileum at the site of appendectomy. The anastomosis was made outside the peritoneal cavity. The specimen showed 13 polyps. There was a cluster of polyps in the pelvic colon; however, there was a free area of polyps extending to within 7 cm. of the distal line of resection and to within 2.5 cm. of the proximal line. The polyps were all benign on microscopic examination. The pathological diagnosis was polyposis. The patient did well and was dismissed from the hospital on Jan. 18, 1954, 12 days after the operation. There has been no diarrhea at any time since operation. He has been examined proctoscopically at four month intervals in the outpatient clinic. There are no residual polyps either in the rectum or in the small cuff of remaining cecal mucosa.

The history of the patient in case 5 is particularly interesting. Leaving the ileocecal valve appears to protect against the occurrence of diarrhea. When the ileocecal valve and sphincter are spared ordinarily, a segment of 4 to 5 cm. in length containing a full thickness of the cecal wall remains. In the instance of this patient a cuff of cecum just long enough to spare the ileocecal valve was left. No polyps apparently were left in the cecum. Moreover, Dr. W. C. Bernstein, proctologist to the University Hospital, and one of us (O. H. W.) have a few patients with multiple polyps of the colon and rectum under observation in whom total colectomy has been done, leaving the rectal segment. Dr. Bernstein, has been able to keep the condition under control, and no rectal cancers have been observed in this small series of patients.

COMMENT

If all or nearly all of the colon can be removed in thos patients who are predisposed to the future developmen of carcinomas of the colon without crippling them unnecessarily with diarrhea and without pyramiding th operative mortality, the procedure should prove to hav definite value. Any remaining segment of colon is the within reach of the proctoscope and is available for read annual proctoscopic inspection. In the group under discussion here, the entire colon, and in some instances a much as 30 cm. of terminal ileum, was excised with n greater morbidity than that associated with a less extensive colectomy. Only two patients who had less than 3 cm. of terminal ileum removed with the colon have ha difficulties with postoperative function of the bowel A study of hemicolectomies on the right done in thi hospital reveals similar findings. In those patients i whom terminal ileum of lengths greater than 30 to 4 cm. was removed along with the right colon, difficultie in function of the bowel often resulted. This circumstance would appear to suggest that the main functio of the left colon is one of storage. Fortunately, it i usually not necessary to remove more than 30 cm. o terminal ileum, even for a carcinoma of the cecum. Thi study of the results of colectomy in lesions of the righ colon has made us more alert to the importance of nc removing too much terminal ileum with such lesions i diarrhea is to be avoided. Whenever the enlargement o the lymph nodes in the ileocecal mesentery in ceca cancers suggests the necessity of sacrificing more tha 30 cm. of terminal ileum with its mesentery, we hav not hesitated to do so.

The terminal ileum and the right colon constitut the "water wringer" [1] of the intestine. The precise limit of terminal ileum to which water reabsorption is confine are not known. Sharply defined limits are difficult to establish because of the adaptive process of the ileum fo water reabsorption. When more than 30 cm. of termina ileum is excised with the colon, there is considerable individual variation in the degree of postoperative dysfunction of the bowel. A few patients in whom 70 cm. o more of terminal ileum was resected along with th colon have had less diarrhea than a few patients i whom only 40 to 50 cm. of terminal ileum was remove with the colon.

With regard to the amount of rectum to be retained the preservation of the full thickness of the wall o the terminal rectum of a segment as short as 5 cm. wil insure complete and normal continence. Several anastomoses as low as 5 cm. from the anus have been made in this clinic during the past decade, with preservation of normal continence. Whether the anastomosis was made in the upper rectum or at a lesser distance from the anus seems to have made little difference in subsequent function of the bowel. Obviously, it is a simpler operation to effect an anastomosis to the iliac colon than to the rectum. In the aged, continence may be impaired despite preservation of the lower rectal segment with its sphincters. This circumstance was observed in an 82-year-old woman in this group.

Although the number of cases is small, retaining the ileocecal valve has proved to be an important asset in insuring the preservation of normal function of the bowel. Kremen[9] and his associates made the important observation in dogs that the preservation of the ileocecal valve with 2 or 3 cm. of terminal ileum protects against diarrhea even when the distal half of the small intestine is removed. Wherever feasible, it would appear to be wise therefore in colic resections to preserve the ileocecal valve.

Mortality.—The hospital mortality rate in the group (5.5%) is not excessive when compared with that for colectomies reported from this hospital in other years. Since April 1, 1954, subtotal or total colectomy has been done in 6 additional cases with no hospital mortality, therefore making the over-all mortality for the 79 cases 5%. In 61 consecutive cases of colic resection over a 2 year interval reported from this clinic in 1943,[1] there was a hospital mortality of 1.6%. These resections, carried out by the closed method of anastomosis, done at a time when neither intestinal antibiotics nor penicillin were available, represent the best achievement of this clinic on the score of mortality in the surgical management of colic lesions. In that group of 61 patients, there were 7 subtotal excisions of the colon in which the ileum of the cecum was anastomosed to the iliac colon; in this small group there were no deaths. In a larger series reported in 1945,[10] there were 6 hospital deaths among a total of 78 cases, a mortality of 7.6%. Combining the two reported series in 1943 and 1945 gave an over-all hospital mortality rate of 5%.

Special or Earlier Adaptations of Total or Subtotal Colectomy.—Total or near total colectomy has not been used frequently in the past for the treatment of malignancies and polyps of the colon, although Lane[11] in 1914 recommended a one-stage colectomy with ileoproctostomy 40 years ago. The mortality rate for the procedure he used was under 10%, a truly remarkable accomplishment for that time. Lane employed colectomy for treating chronic constipation, which he believed was the basis for a large number of the ills of the body. While colectomy had little effect upon the primary disease of his patients, it did cure their constipation. Indeed, several patients in the present study were more appreciative of the relief of their constipation than of the removal of a cancer. In very severe constipation that has constituted a major problem for the patient, resistant to conventional modes of therapy, hemicolectomy on the right that is combined with excision of approximately 50 cm. of terminal ileum has occasionally been done in this clinic, with results pleasing to the patient and surgeon as well.

Colectomy with ileoproctostomy has been employed by surgeons for several years in treating familial polyposis. Mayo and Wakefield,[12] Hoxworth and Slaughter,[13] and others have reported small numbers of cases of polyposis treated in this manner with good results. One of the earlier applications of subtotal colectomy in this clinic[14] was for colic obstruction in both the right and the left colon. Baronofsky[15] advocated primary subtotal colectomy in treating certain cases of obstruction of the large intestine to overcome the difficulties of anastomosing distended intestine of dubious viability. Such a procedure avoids the preliminary colostomy and its attendant prolongation of hospitalization. By this procedure Baronofsky noted too the presence of unsuspected polyps in remote areas of the colon. The experience of this clinic[16] suggests, however, that, in the presence of great intestinal distention, a preliminary decompressive operation is to be preferred to primary colectomy in the management of acute obstruction of the left colon.

Other Devices to Improve Accomplishment in Colic Cancer.—No effort has been made in this study to compare five year survival rates with those reported by others, inasmuch as the number of patients available for a 5 year follow-up study would be rather small. It is evident that in addition to excising more potential malignant lesions, a greater area of mesentery with its regional lymph-node-bearing area is excised as well. Recurrences due to the seeding of cancer cells in the colic lumen from handling the primary lesion at surgery are minimized. The importance of the mechanism of seeding as a cause of recurrent carcinoma of the colon has recently been emphasized by Cole[17] and his associates. A word would appear to be in order concerning the inability of our present methods of investigation to demonstrate certain lesions in the colon. It is not always possible to get an accurate roentgen examination of the more proximal colon. The presence of obstructing lesions in the left colon, the poor preparation of the right colon, and the necessity of examining increasing numbers of patients without sufficient time or personnel thwart an accurate examination. Clinicians and surgeons, therefore, need to recognize their responsibility in the early detection of these polyps and small cancers in the proximal reaches of the colon. It is not a task to be left solely to the roentgenologist. The inability of the roentgenologist to visualize the interior of the more proximal colon with the same degree of accuracy as the lower left colon probably explains in part the frequency with which

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9. Kremen, A. J.; Linner, J. H., and Nelson, C. H.: An Experimental Evaluation of the Nutritional Importance of Proximal and Distal Small Intestine, Ann. Surg. **140**: 439-447, 1954.

10. Wangensteen, O. H.: Primary Resection (Closed Anastomosis) of Rectal Ampulla for Malignancy with Preservation of Sphincteric Function together with a Further Account of Primary Resection of the Colon and Rectosigmoid and a Note on the Excision of Hepatic Metastases, Surg., Gynec. & Obst **81**: 1-24, 1945.

11. Lane, W. A.: The Operative Technique of Ileocolostomy and of Colectomy, Brit. J. Surg. **2**: 599-608, 1914-15.

12. Mayo, C. W., and Wakefield, E. G.: Disseminated Polyposis of the Colon: New Surgical Treatment in Selected Cases, J. A. M. A. **107**: 342-348 (Aug. 1) 1936.

13. Hoxworth, P. I., and Slaughter, S. P.: Polyposis (Adenomatosis) of the Colon, Surgery **24**: 188-211, 1948.

14. Wangensteen, O. H.: Cancer of the Colon and Rectum with Special Reference to (1) Earlier Recognition of Alimentary Tract Malignancy; (2) Secondary Delayed Re-Entry of the Abdomen in Patients Exhibiting Lymph Node Involvement; (3) Subtotal Primary Excision of the Colon; (4) Operation in Obstruction, Wisconsin M. J. **48**: 591-597, 1949.

15. Baronofsky, I. D.: Primary Resection and Aseptic End-to-End Anastomosis for Acute or Subacute Large Bowel Obstructions, Surgery **27**: 664-672, 1950.

16. Wangensteen, O. H.: Intestinal Obstructions, ed. 3, Springfield, Ill., Charles C Thomas, Publisher, 1955 (Lit.).

17. Cole, W. H.; Packard, D., and Southwick, H. W.: Carcinoma of the Colon with Special Reference to Prevention of Recurrence, J. A. M. A. **155**: 1549-1553 (Aug. 28) 1954.

polyps were found in the right and proximal transverse colon in this study. It seems likely too, on the basis of these findings, that polyps of the right colon occur more frequently than has been previously appreciated.

"Second-Look" Procedure. — Employment of the "second-look" operation in patients with colic cancer who are found to have cancer in the regional lymph nodes is beginning to prove its worth.[18] At intervals of six months, long before the expiration of the "silent period," another operation is carried out in patients with cancer in the lymph nodes, at which time the whole operative field is carefully and thoroughly surveyed. Lymph-node-bearing tissue in areas adjacent to the normal lymph drainage sites of the initial lesion is removed. A few regional lymph nodes next to the aorta and vena cava are removed, and a punctilious search is made for evidence of any residual cancer. Any suspicious tissue is removed and is submitted to careful histological study. It is usual to remove and label 20 to 30 pieces of tissue for paraffin fixation and study in such second-look procedures. Such reentries are made at successive intervals of six months, until a final exploration is negative. In one patient, a "sixth look" was necessary before the patient was found to be free of cancer. In the recently reported evaluation of the second-look procedure in patients with colic cancer, there were 33 patients who were found to have cancerous lymph nodes at the primary operation and consequently were subjected to a second-look procedure. Of these, 17 were found to be free of cancer; 15 have remained well, and 2 have died of causes unrelated to cancer. Of the 16 patients who still had residual cancer at the first second-look operation, 5 (31.2%) no longer have cancer as a result of successive second looks. Obviously, all of these five patients, in time, would have succumbed to their cancers. It is plain that it is necessary to resist being too optimistic over this accomplishment. And certainly, it will take additional years to determine exactly what the second-look procedure has to offer in colic malignancy. The present record suggests definitely, however, that it has a contribution to make.

SUMMARY AND CONCLUSIONS

When total or subtotal colectomy is done for polyps or carcinoma of the colon, a number of concealed lesions are uncovered, remote from the site of the primary lesion that compelled the operation. In this study, 38% of patients with an initial diagnosis of carcinoma of the colon and/or polyps were found to have additional polyps in a portion of the colon that was believed to be uninvolved preoperatively. These polyps would not have been removed if the conventional hemicolectomy on the right or the usual segmental colectomy on the left had been employed. In three patients, an unsuspected carcinoma was found in the removed specimen of the colon. In this group of patients, 18.6% developed, either simultaneously or successively in time, a second carcinoma of the colon. An unsuspected cancer of the cecum was found in a fourth patient, who underwent colectomy for diverticulitis. If not more than 30 cm. of terminal ileum is excised with the colon, function of the bowel postoperatively is usually quite normal. The hospital mortality rate for total or subtotal colectomy compares favorably with that for less extensive colectomies. In this series of 73 total or subtotal colectomies, the hospital mortality was 5.5%. If no ileum is excised, persistent diarrhea following total or subtotal colectomy is practically nonexistent. Preservation of the ileocecal valve assures normal function of the bowel attending subtotal or near total colectomy. Cecorectal anastomoses are performed by choice when the diameter of the distal component of the anastomosis is large. The remaining ring of cecal mucosa can be inspected through the proctoscope.

This experience would appear to indicate that total or subtotal colectomy is an acceptable operation for all lesions of the colon in which no ileum, or a very short segment thereof, needs to be removed. In fact, the frequency with which findings important to the patient are uncovered suggests that total or subtotal colectomy should become, under favorable circumstances, the operation of choice for cancers of the colon beyond the hepatic flexure. And, for cancers of the cecum and ascending colon in which less that 20 cm. of ileum is sacrificed, the surgeon may extend the excision of colon to the iliac colon or rectum without undue concern over leaving the patient with persistent diarrhea. This extension of the conventional confines of partial colectomy should, if accepted by surgeons, make an additional impress upon improving the present accomplishment in colic cancer. Finally, it would appear that "second-look" operations are indicated in patients with colic cancer who are found, at the primary operation, to have involvement of the regional lymph nodes.

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[18] Wangensteen, O. H., and Others: An Interim Report upon the "Second Look" Procedure for Cancer of the Stomach, Colon, and Rectum and for "Limited Intraperitoneal Carcinosis" Surg., Gynec. & Obst. **99**: 257-267, 1954.

Aneurysm of Middle Cerebral Artery.—The detection of aneurysm involving the middle cerebral artery on either side is extremely difficult prior to rupture. In this respect the aneurysms of the middle cerebral artery differ greatly from those found elsewhere in the circle of Willis. In aneurysms arising in relation to most of the large vessels characteristic syndromes have been elucidated, so that the diagnosis may be determined on clinical grounds alone, often without benefit of arteriography. On the contrary, the symptoms referable to the aneurysms of the middle cerebral artery are indeterminate and nonspecific. . . . In the [author's] series . . . the only symptom of significance prior to rupture consisted of headache of a nonspecific character. . . . There was nothing in the constellation of symptoms prior to rupture which could be utilized to point to the possibility of aneurysm. It is possible that the combination of headache, focal seizures, aphasia, and transient weakness might give rise to the consideration of middle cerebral artery aneurysm as a diagnostic possibility, but the symptoms can hardly be regarded as specific. . . . After rupture it is not always possible to be altogether certain whether the symptoms result from aneurysm, hemorrhage into a tumor, or cerebral hemorrhage of hypertensive origin. The difficulties arise in regard to the two last possibilities because of the presence of choked disc in some instances, and the differentiation can be made only on the basis of further studies.—K. Frankel, M.D., and B. J. Alpers, M.D., The Clinical Syndrome of Aneurysm of the Middle Cerebral Artery, *A. M. A. Archives of Neurology and Psychiatry*, July, 1955.

HEMORRHAGIC DISORDER FOLLOWING MASSIVE WHOLE BLOOD TRANSFUSIONS

Julius R. Krevans, M.D.
and
Dudley P. Jackson, M.D., Baltimore

With the increasing use of whole blood transfusions, a variety of untoward reactions have been recognized. One such complication is the development of a hemorrhagic diathesis. This has been observed after hemolytic transfusion reactions [1] and after the infusion of blood that has been contaminated with bacteria.[2] More recently, abnormal bleeding has been observed after transfusion of unusually large amounts of compatible blood.[3] Recently a patient was observed to develop severe abnormal bleeding and profound thrombocytopenia after the rapid infusion of 20,500 ml. of whole blood during a surgical procedure. This observation prompted a study of the effects of blood transfusions on the platelets and the blood coagulation mechanism.

MATERIAL AND METHODS

During the period from July, 1954, through January, 1955, 32 patients were studied. These patients were hospitalized on the surgical, medical, or pediatric services of the Johns Hopkins Hospital. With one exception, donor blood was collected by gravity through plastic tubing into plastic bags, each containing 75 ml. of acid-citrate-dextrose solution. The needles used with these donor sets were of laminar-flow design and were coated to be hemorepellent. All blood was stored at 4 C for a period of less than 21 days. The blood was administered through disposable plastic recipient sets. When rapid infusion of the blood was required, external pressure was applied to the plastic bags. One patient (case 2) received blood that had been collected in standard, glass vacuum bottles with plastic tubing. Rapid infusion of the blood was accomplished in this case by the use of a rotary, mechanical pump. All cross matchings were performed with cells suspended in saline solution and in bovine albumin. In addition, cross matchings by the indirect Coombs technique were performed when the patient had a history of previous transfusions or pregnancies.

Platelets were counted by the phase-contrast technique of Brecher and Cronkite [4] in which 1% ammonium oxalate is used as a diluent. The counts were performed, in duplicate, from pipettes filled at the bedside with venous or capillary blood. The normal range is 150,000 to 300,000 per cubic millimeter. This technique has the advantage of being more accurate than other procedures used for counting platelets. In addition, simultaneously prepared blood smears stained with Wright's stain were examined. Hemostatic function studies were performed with techniques as previously recorded.[5]

RESULTS

Thirty-two patients who received one or more whole blood transfusions were studied. Five of these patients were newborn infants on whom exchange transfusions were performed for hemolytic disease of fetus and newborn, and 27 were adults who received transfusions for a variety of clinical disorders. The ages of the 27 adult patients ranged from 38 to 86 years. All but four patients had pretransfusion platelet counts or pretransfusion blood smears available for estimation of platelet levels. There was no history of thrombocytopenia or abnormal bleeding in any of these patients.

Adult Patients Receiving More Than 5,000 Ml. of Whole Blood.—Fourteen adult patients received from 5,500 ml. to 20,500 ml. of whole blood within a 48 hour period (table 1). In addition, five of these received dextran in amounts not exceeding 1,000 ml. In all of these patients, the need for massive whole blood transfusions arose during a surgical procedure. After the transfusions, all developed significant thrombocytopenia and 11 displayed one or more of the following clinical evidences of abnormal bleeding: cutaneous petechiae (fig. 1), ecchymoses, excessive bleeding from the operative site, bleeding from the mucous membranes, gastrointestinal hemorrhage, and hematuria. Only two of these patients survived (cases 5 and 9). All 14 had some degree of shock, and in 8 severe protracted shock was noted and ultimately was resistant to further transfusions and to the administration of arterenol (nor-epinephrine). Other studies of hemostatic function were performed in seven cases; the results are summarized in table 2. The whole blood clotting time was prolonged in only one instance (case 1). Significant hypoprothrombinemia was found in three patients (cases 4, 8, 12). The patient in case 4 had cirrhosis with moderate hypoprothrombinemia before surgery and transfusions. Case 8 will be recorded in more detail below. The patient in case 12 had a carcinoma of the stomach with an abscess extending into the pancreas. After surgery this patient developed chemical evidence of obstructive jaundice and

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From the Department of Medicine of the Johns Hopkins University School of Medicine and Hospital.

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The fibrinogen used in case 6 was prepared by the Michigan Department of Health, Lansing, and supplied through Dr. D. N. W. Grant, Director, Blood Program, American Red Cross.

1. (*a*) Muirhead, E. E.: Incompatible Blood Transfusions with Emphasis on Acute Renal Failure, Surg., Gynec. & Obst. **92**: 734 (June) 1951. (*b*) Conley, C. L.: Symposium on Use and Misuse of Blood Transfusion in Surgery: Untoward Reactions from Blood Transfusions, Maryland M. J. **1**: 547 (Nov.) 1952.

2. Jackson, D. P., and Krevans, J. R.: Unpublished data.

3. (*a*) Bell, W. N.: Symposium on Clinical Medicine: The Clinical Use of the Coagulogram, M. Clin. North America **37**: 1843 (Nov.) 1953. (*b*) Stefanini, M.; Mednicoff, I. B.; Salomon, L., and Campbell, E. W.: Thrombocytopenia of Replacement Transfusion: A Cause of Surgical Bleeding, abstracted, Clin. Res. Proc. **2**: 61 (April) 1954.

4. Brecher, G., and Cronkite, E. P.: *Morphology and Enumeration of* Human Blood Platelets, J. Appl. Physiol. **3**: 365 (Dec.) 1950.

5. Jackson, D. P.; Hartmann, R. C., and Busby, T.: Fibrinogenopenia Complicating Pregnancy: Clinical and Laboratory Studies, Obst. & Gynec. **5**: 223 (March) 1955.

hypoprothrombinemia. Moderate hypofibrinogenemia was encountered only in the patient is case 8. Summaries of several illustrative cases follow.

CASE 1.—A 50-year-old white male was admitted because of thrombotic occlusion of the abdominal aorta. On July 7, 1954, the thrombotic segment of the aorta was excised and a frozen dried homograft was inserted. During the nine hour operative procedure, the patient received 17,500 ml. of whole blood. On the first postoperative day the patient developed a hemorrhagic diathesis manifested by hematuria and gastrointestinal bleeding and he was given 3,000 ml. of whole blood. During the second postoperative day he had marked hematuria, rectal bleeding, bloody mucus in the trachea, and large amounts of blood in his aspirated gastric contents. On this day the patient received 1,000 ml. of whole blood and continuous arterenol infusions. On the third postoperative day the abnormal bleeding continued and, because of the possibility of mesenteric thrombosis, an exploratory laparotomy was performed. At operation there was a large amount of clotted blood in the retroperitoneal area. A few hemorrhages in the transverse colon were noted, and no thrombosis was found. He received an additional 500 ml. of blood. On the fourth postoperative day, severe abnormal bleeding continued. The patient received 500 ml. of whole blood, and administration of arterenol was continued. Laboratory studies at this time revealed: hematocrit 52%, icteric index 50, white blood cell count 7,000 per cubic millimeter, platelet count 5,200 per cubic millimeter, whole blood clotting time 58 minutes, prothrombin time >65% of normal, clot retraction markedly impaired, rate of conversion of prothrombin to thrombin (prothrombin consumption) impaired, plasma fibrinogen 450 mg. per 100 cc., and clot lysis time normal; an assay for circulating anticoagulants was negative. On the fifth postoperative day the abnormal bleeding continued and arterenol therapy was required for severe hypotension. He received an additional 500 ml. of whole blood, and his platelet count was 6,000 per cubic millimeter. He had a generalized convulsion, lapsed into coma, and died on the sixth postoperative day.

TABLE 1.—*Platelet Levels After Transfusions of from 5,500 to 20,500 Milliliters of Whole Blood*

Case No.	Age (Yr.), Race, and Sex	Diagnosis	Pre-Transfusion, Platelets/ Cu. Mm.	Total Blood Given, Ml.*	Post-Transfusion, Platelets/ Cu. Mm.†	Outcome	Remarks
1	50 W M	Excision of abdominal aneurysm	......	20,500	5,200	Died	Excessive bleeding from wound; rectal bleeding; hematuria; oligu protracted shock
2	53 W F	Bleeding duodenal ulcer; transfixion of ulcer and pyloroplasty	Normal on smear	17,000	56,000	Died	History of porphyria; no abdomi bleeding
3	70 W M	Nephrectomy	......	16,000	46,000	Died	Excessive bleeding from wound; petechiae; protracted shock
4	42 W M	Cholecystectomy; liver biopsy; Laennec's cirrhosis	163,000	15,500	18,000	Died	Excessive bleeding from wound; subcutaneous bleeding; hematuria protracted shock; diffuse bleedin when reexplored
5	43 N M	Multiple gunshot wounds of abdomen	Normal on smear	15,500 (1,000 ml. dextran)	22,000	Survived	Hematuria; protracted shock
6	45 W M	Actinomycosis; right upper lobectomy	Normal on smear	12,500	39,000	Died	Excessive bleeding from wound; petechiae; diffuse bleeding when reexplored
7	53 W F	Alcoholic gastritis with bleeding; subtotal gastrectomy	Low normal on smear	10,500 (225 ml. dextran)	51,000	Died	Excessive bleeding from wound; petechiae; continued gastrointest bleeding
8	64 W M	Excision of abdominal aneurysm	Normal on smear	9,500 (500 ml. dextran)	47,000	Died	Rupture of aortic graft; reoperat diffuse bleeding during second op tion; protracted shock
9	54 N M	Excision of thoracic aneurysm	194,000	9,500	34,000	Survived	Hematuria; protracted shock
10	61 W F	Carcinoma of breast; erosion of subclavian artery	......	9,000 (500 ml. dextran)	64,000	Died	Petechiae
11	69 N M	Carcinoma of pancreas; 2-stage Whipple procedure	Normal on smear	8,000	58,000	Died	Excessive bleeding from wound; gastrointestinal bleeding
12	55 N M	Carcinoma of stomach; subtotal gastrectomy; splenectomy	Normal on smear	7,500 (850 ml dextran)	93,000	Died	No abnormal bleeding; protracte shock
13	86 N M	Excision of thoracic aneurysm	152,000	7,000	38,000	Died	No abnormal bleeding; protracte shock
14	75 W F	Bleeding gastric ulcers; subtotal gastrectomy	Normal on smear	5,500	44,000	Died	Diffuse bleeding during surgery; ecchymoses; hematuria; protract shock

* Total blood given within a 48 hour period. † Lowest post-transfusion platelet count.

CASE 6.—A 45-year-old white male was shown to have actino mycosis of the upper lobe of the right lung. Laboratory resul on Nov. 17, 1954, were: hematocrit 41.6%, white blood ce count 8,700 per cubic millimeter, and platelets normal on staine blood smear. After one month of therapy with intramuscularl given penicillin, a lobectomy was performed. During this thre hour procedure the patient received 2,500 ml. of whole bloo and there was difficulty controlling the bleeding from the ve vascular pleural surfaces. After operation he continued to blee from the operative site, and an additional 4,000 ml. of bloo was administered during this day. Laboratory studies at th time revealed: hematocrit 39%, icteric index 13, platelet cou 79,000 per cubic millimeter, whole blood clotting time minutes, prothrombin time >50% of normal, clot retracti slightly impaired, and plasma fibrinogen 226 mg. per 100 c On the first postoperative day he continued to bleed from t operative site. After administration of an additional 6,000 m of blood and 3 gm. of calcium gluconate, the laboratory stud were repeated and the results were: hematocrit 42.7%, icte index 8, platelet count 39,000 per cubic millimeter, and plas fibrinogen 260 mg. per 100 cc. Because of continued bleed from the chest, an exploratory thoracotomy was performed. operation multiple bleeding points were noted in the pleura a cutaneous purpura appeared on the neck and shoulders. Duri this two hour procedure, efforts were directed at effecting lo hemostasis, and the patient received 2,500 ml. of whole blo and 1.53 gm. of fibrinogen intravenously. Immediately followi the operation, laboratory examinations revealed: plasma fibr ogen 299 mg. per 100 cc., carbon dioxide combining pow 33.1 mEq. per liter, and serum calcium 10.5 mg. per 100 On the third postoperative day bleeding from the operative s diminished, but cutaneous petechiae continued to appear. T patient received an additional 500 ml. of whole blood. Labo tory studies at this time revealed: hematocrit 42%, platelet cou 50,000 per cubic millimeter, and CO_2 combining power 36 mEq. per liter. During the day the patient developed progressive respiratory difficulty and died.

CASE 8.—A 64-year-old white male was admitted for resection of an abdominal aortic aneurysm. The admission laboratory findings were: hematocrit 40.1%, white blood cell count 8,800 per cubic millimeter, platelets normal on smear, and serologic tests for syphilis negative; an aortogram revealed an aneurysm of the abdominal aorta. On July 15, 1954, the aneurysm was excised and a nylon graft was inserted. During this three hour procedure the patient received 2,000 ml. of whole blood and no abnormal bleeding was noted. On the first postoperative day the patient suddenly developed profound shock and evidences of intraperitoneal hemorrhage. At exploratory laparotomy, the ruptured graft was replaced. This operative procedure lasted four hours, and the patient received 11,000 ml. of whole blood and 1,000 ml. of dextran. During this operation, and after the patient had received 7,500 ml. of whole blood and 500 ml. of dextran, diffuse oozing was noted from all cut surfaces. Hemostatic function studies at this time revealed: platelet count 47,000 per cubic millimeter, whole blood clotting time 29 minutes, prothrombin time 50% of normal (the prothrombin time was not shortened by the addition of barium sulfate-adsorbed plasma from a normal individual), and plasma fibrinogen was 91 mg. per 100 cc. One hour after completion of this surgical procedure, and after the infusion of 11,000 ml. of whole blood and 1,000 ml. of dextran, the plasma fibrinogen level was 171 mg. per 100 cc. The patient never regained consciousness and expired one hour later.

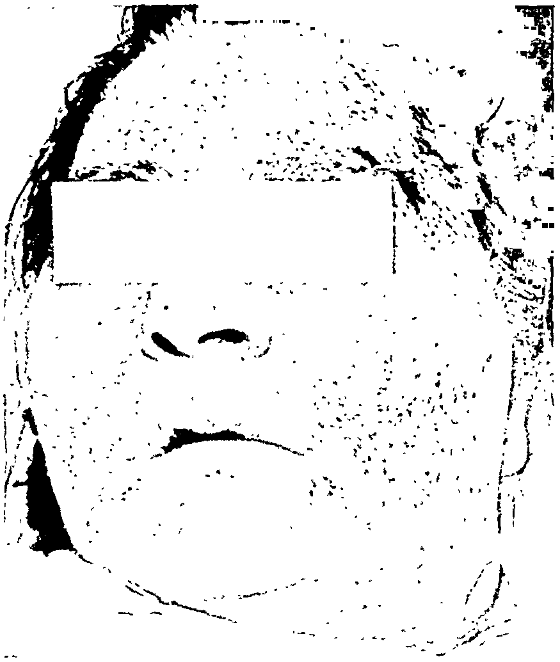

Fig. 1.—Appearance of petechiae in patient in case 10 on the day after surgical procedure. During operation the patient was in Trendelenburg position. In the preceding 24 hours the patient had received 9,000 ml. of whole blood. Platelet count at the time the photograph was made was 64,000 per cubic millimeter.

CASE 9.—A 54-year-old Negro male was admitted for excision of an abdominal aneurysm. Laboratory studies revealed: hematocrit 39%, white blood cell count 8,400 per cubic millimeter, platelet count 194,000 per cubic millimeter, and serologic tests for syphilis positive; an aortogram revealed an aneurysm of the abdominal aorta. On Aug. 16, 1954, the aneurysm was excised and a frozen dried homograft inserted. Platelet counts were performed twice during this six hour operative procedure. During the second hour of operation, after the patient had received 1,000 ml. of whole blood, the platelet count was 143,000 per cubic millimeter. During the fourth hour of the operation, after the patient had received an additional 2,500 ml. of blood, the platelet count was 34,000 per cubic millimeter. Because of a friable aortic segment, considerable bleeding was encountered at surgery, but no diffuse bleeding was noted. One hour after surgery, and after a total of 9,500 ml. of whole blood had been administered, the platelet count was 41,000 per cubic millimeter. During the first postoperative day there was slight bleeding from the operative site and some bleeding around the urinary catheter was noted, but there was no hematuria. The platelet count was 50,000 per cubic millimeter. The patient received 1,000 ml. of whole blood. On the second postoperative day an additional 500 ml. of whole blood was administered. No further bleeding was noted, and the platelet count was 60,000 per cubic millimeter. On the third postoperative day the platelet count was 52,000 per cubic millimeter. No additional transfusions were administered. On the 4th postoperative day the platelet count was 67,000 per cubic millimeter; on the 7th, 147,000 per cubic millimeter; and on the 10th, 593,000 per cubic millimeter. Four weeks after surgery the platelet count was 518,000 per cubic millimeter, and the patient was discharged two weeks later. Five months after surgery the platelet count was 395,000 per cubic millimeter. This patient's course is summarized in figure 2.

TABLE 2.—*Hemostatic Function Studies in Patients Receiving Multiple Whole Blood Transfusions*

Case No	Amount of Blood Received, Ml.	Platelets/ Cu. Mm.	Clotting Time, Min.*	Prothrombin Time, % of Normal	Fibrinogen, Mg./ 100 Ml.	Other
1	20,500	5,200	58	>65	450	Clot lysis time normal; clot retraction impaired; prothrombin consumption impaired; anticoagulant assay negative
3	16,000 18,500	46 000 106,000	33 ..	>65 >50	251 296	Clot retraction impaired
4	7,500 15,500	77,000 18,500	34 ..	45 >50	... 179	....
6	6,500 12,500 13,000 and 1.53 gm. fibrinogen I.V.	79,000 39,000	25	>65	225 260 300	Clot retraction slightly impaired
8	9,500 13,000	47 000	29 ..	50	91 171	....
10	9,000	83,000	28	>65	430	Clot lysis time normal; clot retraction slightly impaired
12	7,500	93,000	15	30	178	Clot retraction slightly impaired; bilirubin, total 23.6 mg. per 100 cc., direct 19.6 mg.

Normal range 15 to 35 min.

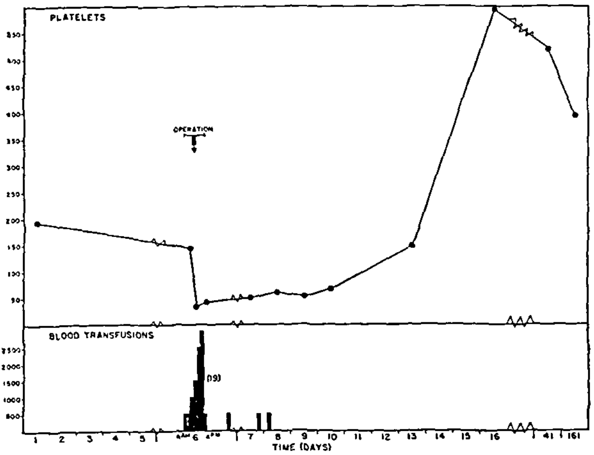

Fig. 2.—Summary of course of patient in whom aneurysmectomy was done (case 9).

Adult Patients Receiving Less Than 5,000 Ml. of Whole Blood.—Thirteen adult patients received from 500 ml. to 4,500 ml. of whole blood within a 48 hour period (table 3). None of these patients showed any evidence of a hemorrhagic diathesis. Four developed significant thrombocytopenia (less than 100,000 platelets per cubic millimeter), and the other nine showed either minimal depression or no change in their platelet levels. Eleven of these patients survived; the two deaths occurred in patients with gastrointestinal hemorrhage. In one instance death was attributed to aspiration following hematemesis (case 17) and in the other to protracted shock following subtotal gastrectomy (case 22). In one instance (case 22) direct transfusion of blood from donor to recipient using silicone-coated syringes was evaluated. The recipient's platelet count before transfusion was 150,000 per cubic millimeter. Five hundred milliliters of whole blood from a donor whose platelet count was 365,000 per cubic millimeter was given by the multiple syringe technique. Immediately after the transfusion the recipient's platelet count was 121,000 per cubic millimeter.

TABLE 3.—*Platelet Levels After Transfusions of from 500 to 4,500 Milliliters of Whole Blood*

Case No.	Age (Yr.), Race, and Sex	Diagnosis	Pre-Transfusion, Platelets/ Cu. Mm.	Total Blood Given, Ml.*	Post-Transfusion, Platelets/ Cu. Mm.†	Outcome	Remarks
15	73 W M	Excision of abdominal aneurysm	183,000	4,500	82,000	Survived	No abnormal bleeding
16	38 W M	Pulmonary tuberculosis; right upper lobectomy; thoracoplasty	......	3,500	105,000	Survived	No abnormal bleeding
17	51 W M	Gastrointestinal hemorrhage; ? duodenal ulcer; no surgery	Normal on smear	3,500	161,000	Died	No generalized bleeding; aspiration after hematemesis
18	68 W M	Excision of abdominal aneurysm	259,000	3,000	105,000	Survived	No abnormal bleeding
19	54 W M	Excision of abdominal aneurysm	195,000	3,000	93,000	Survived	No abnormal bleeding
20	45 N M	Excision of thoracic aneurysm	196,000	2,500	86,000	Survived	No abnormal bleeding
21	54 N M	Carcinoma of tongue; hemimandibulectomy; hemiglossectomy; radical neck dissection	285,000	2,500	164,000	Survived	No abnormal bleeding
22	63 W M	Bleeding duodenal ulcer; subtotal gastrectomy; splenectomy	Normal on smear	2,500	66,000	Died	No abnormal bleeding; protracted shock
23	48 W M	Thrombosis of abdominal aorta; excision of aorta with homograft	110,000	2,000	100,000	Survived	No abnormal bleeding
24	57 W M	Excision of abdominal aneurysm	192,000	1,500	195,000	Survived	No abnormal bleeding
25	66 W M	Excision of abdominal aneurysm	321,000	1,000	165,000	Survived	No abnormal bleeding
26	43 W F	Thrombosis of abdominal aorta; exploratory laparotomy; bilateral sympathectomy	257,000	500	135,000	Survived	No abnormal bleeding
27	47 W M	Excision of abdominal aneurysm	243,000	500	225,000	Survived	No abnormal bleeding

* Total blood given within a 48 hour period. † Lowest post-transfusion platelet count.

Exchange Transfusions for Hemolytic Disease of Fetus or Newborn Infants—Five newborn infants received from one to three exchange transfusions of 500 ml. of whole blood for hemolytic disease of fetus and newborn due to anti-D antibody (table 4). All of the transfusions were performed with type O, cde whole blood that had been drawn within the preceding 24 hours. The infants had been given a vitamin K analogue at birth, and all were given calcium gluconate intravenously at the time of the exchange transfusions. After the exchange transfusions, each of the infants developed significant thrombocytopenia. Two of the five (cases 28 and 30) developed evidences of an abnormal bleeding tendency. One (case 28) developed cutaneous petechiae, ecchymoses, hematuria, and rectal bleeding, and the other (case 30) developed cutaneous petechiae. All of these patients survived. Two other infants with hemolytic disease due to anti-D antibody were studied. In one, the disease was mild. In the other, the disease was moderately severe, and the total serum bilirubin level rose to 18 mg. per 100 cc. Neither of these patients received exchange transfusion. Their platelet counts were normal at birth, and neither developed thrombocytopenia. A summary of an illustrative case follows

CASE 30.—A newborn, white male infant of an Rh-negativ mother was jaundiced at birth. The mother was known to hav been previously sensitized, and this was her sixth pregnancy Prenatal studies showed the presence of anti-D antibody in th mother's serum. Laboratory studies on the infant four hours afte birth revealed: hemoglobin 13 gm. per 100 cc., total seru bilirubin 13.6 mg. per 100 cc., platelet count 410,000 per cubi millimeter, and direct Coombs' test positive. Because of increas ing bilirubinemia, an exchange transfusion of 560 ml. with typ O, cde, *fresh whole blood was performed six hours after birt* During the course of the exchange transfusion the patient wa given 5 ml. of 10% calcium gluconate intravenously. A platel count performed on the donor blood was 171,000 per cub millimeter. Two hours after completion of the exchange tran fusion, the infant's platelet count was 76,000 per cubic mill meter. On the next day petechiae were noted in both axillas. A this time the total serum bilirubin level was 10 mg. per 100 c and the platelet count was 83,000 per cubic millimeter. Th jaundice rapidly subsided, and the patient made an uneventf recovery. On the fourth day of life the platelet count was 124,00 per cubic millimeter; on the fifth day, 150,000 per cubic mill meter; and on the sixth day, 306,000 per cubic millimeter.

The patients in cases 31 and 32 were white male twin with hemolytic disease due to anti-D antibody. Bot required exchange transfusions. Their courses are sum marized in figure 3.

COMMENT

Twenty-seven adult patients and five newborn infants who received one or more whole blood transfusions were studied. Thrombocytopenia was observed t occur in all five infants who received exchange transfusions and in the 14 adult patients who received more than 5,000 ml. of whole blood within a 48 hour period. Eleven of the adults and two of the infants developed clinical evidences of abnormal bleeding. None of the 13 adult patients who received less than 5,000 ml. of whole blood developed clinical evidences of abnormal bleeding, although some did develop mild thrombocytopenia. The thrombocytopenia that was observed was related to the administration of whole blood transfusions. It was observed after transfusions in patients undergoing a variety of surgical procedures, in patients receiving transfusions for gastrointestinal bleeding and undergoing no surgical procedures, and in infants undergoing exchange transfusions for hemolytic disease of fetus and newborn.

The degree of thrombocytopenia was related to the amount of blood given and to the rate of infusion (fig. 4). Significant thrombocytopenia was not encountered when patients received small increments of blood over a period of days or weeks even though the total amount was large, nor was thrombocytopenia observed in patients who underwent surgical procedures but did not receive blood transfusions. Eleven of the adult patients who developed thrombocytopenia after the rapid infusion of more than 5,000 ml. of whole blood exhibited clinical evidences of abnormal bleeding. Seven of these patients developed moderate to severe bleeding that contributed significantly to morbidity and mortality. Four were subjected to exploratory surgical procedures in a futile search for a local cause of the continued hemorrhage. Two patients developed severe gastrointestinal bleeding. In several, continued brisk bleeding from the operative site probably contributed to the protracted hypotension that was the most common feature among the patients who died. In four instances the hemorrhagic diathesis was only of moderate proportion manifested by cutaneous petechiae, mild hematuria, or slightly excessive bleeding from the operative site. All five infants who received exchange transfusions for hemolytic disease developed marked thrombocytopenia, and two displayed clinical evidences of abnormal bleeding. In one (case 30), cutaneous petechiae were noted, and the other (case 28) developed serious bleeding manifested by petechiae, ecchymoses, rectal bleeding, and hematuria.

TABLE 4.—*Platelet Levels After Exchange Transfusions in Newborn Infants with Hemolytic Disease*

Case No.	Pre-Transfusion, Platelets/Cu. Mm.	Total Blood Given	Post-Transfusion, Platelets/Cu. Mm.*	Outcome	Remarks
28	Normal on smear	3 exchange transfusions (500 ml. each)	41,000	Survived	Petechiae; ecchymoses; rectal bleeding; hematuria
29	198,000	1 exchange transfusion (500 ml.)	62,000	Survived	No abnormal bleeding
30	410,000	1 exchange transfusion (765 ml.)	76,000	Survived	Petechiae
31	186,000	2 exchange transfusions (500 ml. each)	50,000	Survived	No abnormal bleeding
32	243,000	2 exchange transfusions (500 ml. each)	31,000	Survived	No abnormal bleeding

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* Lowest post-transfusion platelet count.

Other studies of hemostatic function were performed in seven of the patients who exhibited abnormal bleeding (table 2). Only one patient (case 1) had a prolonged whole blood clotting time. No circulating anticoagulant could be detected in this patient's plasma. Hypoprothrombinemia occurred in three of these patients. In two (cases 4 and 12) the hypoprothrombinemia could be explained on the basis of other factors in these patients and probably had no relationship to the multiple transfusions. In the other (case 8), the hypoprothrombinemia occurred in association with hypofibrinogenemia and thrombocytopenia. It is possible that in this patient (case 8) the pathogenesis of the hemorrhagic diathesis might have been related to the entrance of thromboplastic substances into the blood stream with resultant intravascular defibrination. This was the only instance of hypofibrinogenemia encountered in this series of patients, and it seems clear that fibrinogenopenia was not the cause of the abnormal bleeding that followed multiple transfusions. A hemorrhagic diathesis has been described in patients after extensive thoracic surgery, and the abnormal bleeding

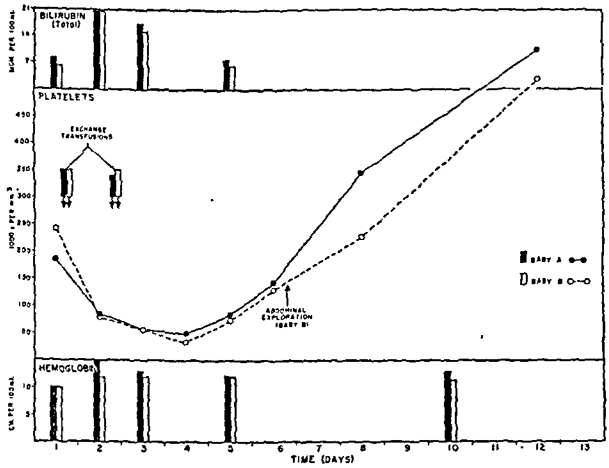


Fig. 3.—Summary of course in newborn twins with hemolytic disease (cases 31 and 32). Exploratory laparotomy was performed in baby B (case 32) because of vomiting. No evidence of intestinal obstruction was found.

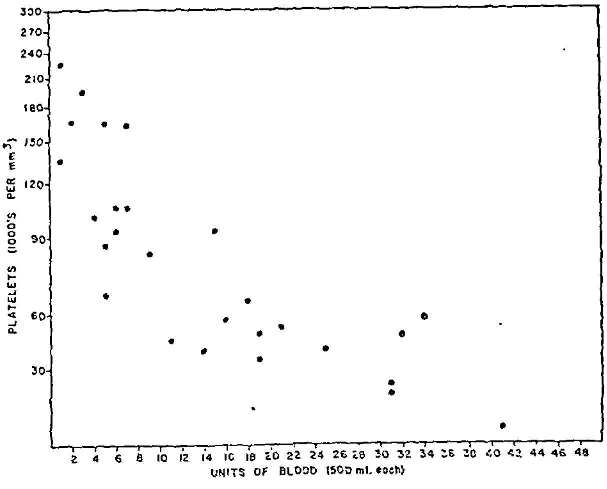
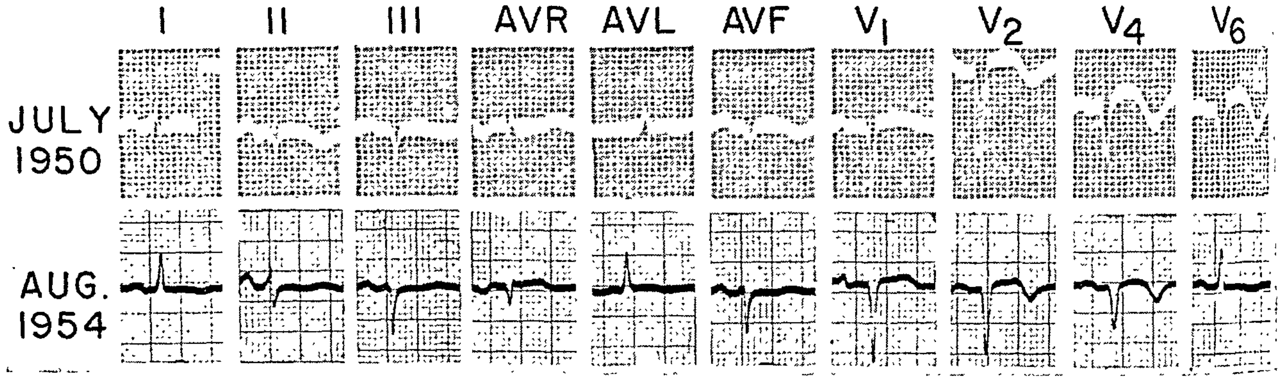


Fig. 4.—Scatter diagram showing the relationship between the amount of blood transfused and the platelet levels. Abscissa—amount of blood administered within a 48 hour period; each unit represents 500 ml. of whole blood. Ordinate—lowest platelet level after transfusions.

at least 10 years and have instituted a treatment as outlined in this presentation in a large number of patients with encouraging results. Publication of the following data was deemed warranted when recently four cases were encountered in one week. It is hoped that clinicians may benefit from awareness of this condition and the ease with which it may be confused with coronary artery disease.

SYMPTOM COMPLEX

The symptom complex consists of a painful affection of the somatic structures of the anterior chest wall associated with exquisite tenderness on fingertip pressure. It occurs very commonly after coronary occlusion; however, it may be encountered in healthy individuals. Histological changes in the soft tissues of the anterior chest wall are inconsistent. When present, they consist of lymphocytic infiltration in the connective tissue, muscular degeneration, and increase in collagen fibrils. The condition is readily confused with coronary artery disease. *Response to corticotropin (ACTH), radiation therapy, and breathing exercises is prompt.* The cause is unknown; however, it appears probable that this condition is analogous to the shoulder-hand syndrome insofar as its pathogenesis is concerned.



Electrocardiograms of patient in case 2 taken four years apart. Tracing taken in 1954 shows higher R waves and indicates less myocardial damage than the one taken in 1950. It is believed the attacks of chest pain in the four-year period were exacerbations of the anterior chest wall syndrome and not new infarcts.

Clinically, the condition has been encountered only in adults between the ages of 30 and 75 years, with the majority of cases in persons above 45 years of age. This age factor is accounted for by the fact that a large number of the patients developed the condition after an attack of coronary occlusion and hence were in the so-called coronary age group. We have no knowledge concerning the appearance of the condition in children. The condition occurs very commonly from four to six weeks, and occasionally several months, after coronary occlusion. In a small proportion of the cases, the pain begins in the days after coronary occlusion. If the condition is not related to coronary artery disease, the history is usually negative. The symptomatology does not vary depending on the origin of the condition; however, for the sake of simplicity, the postinfarction type of this symptom complex will be described hereafter.

Postinfarction Variety of the Syndrome.—During convalescence after an acute attack of coronary occlusion, or less frequently a few months after discharge from the hospital, the patient begins to complain of recurrence of pain in the anterior part of the chest. The pain is usually continuous and spreads throughout the anterior chest wall with no radiation to neck, jaw, or arms. It is usually most severe in the sternal region and precordium. Patients are often aware of the superficial localization of the pain and occasionally express the opinion that the pain is different from the pain of their previous "heart attacks." The pain is subject to spontaneous exacerbations sometimes indistinguishable from an attack of angina pectoris. Unlike angina pectoris, however, the exacerbations are not accompanied by radiation of pain to the neck, jaw, shoulders, arms, and fingers; they are not brought on by physical exertion and are not associated with vasomotor changes such as salivation and perspiration. The onset of exacerbations may be sudden and is often occasioned by a quick movement of the body. The duration is a matter of hours; the termination is usually gradual. Patients are not generally free of pain in the interim between the attacks. Certain positions of *the body and movements of the chest may provoke an* acute exacerbation of pain; those most frequently reported are anterior flexion or posterior extension of the neck and trunk, lateral rotation of the chest, rotations of the neck, and elevation of the arms. There is no relationship to quantity or quality of food. Emotional stress seems to have an aggravating effect. The pain is present and of the same intensity during hours of activity, but it subsides during the night. Nocturnal attacks of pain are uncommon; however, they occasionally awaken the patient only to disappear with change of body position. If not properly handled, the pain tends to persist for months, and even years. It is often severe and incapacitating. The acute exacerbations may be so excruciating that repeated doses of narcotics are required for relief. Glyceryl trinitrate (nitroglycerin) is without effect.

The condition does not make general health deteriorate and is not associated with systemic symptoms; however, the fear of heart attack in a patient with neurotic background may lead to aggravation of the underlying psychological imbalance. Many patients give a history of having been admitted to numerous hospitals and have visited many physicians for treatment of what they consider persistent heart disease. Some have received narcotics for the acute exacerbations of the pain. Addiction to narcotics is not rare. Mental depression and anxiety neurosis are commonly encountered in patients suffering from this condition.

On physical examination the remarkable finding is tenderness of the anterior chest wall. The area of maximal tenderness corresponds to the points of greatest pain, usually the sternochrondral regions and the areas overlying the cardiac apex. Although the soft tissues are sensitive to touch, the tenderness is more pronounced on pressure over the cartilages and bones. Pressure over the tender areas provokes a severe local pain without radiation. The area of maximal tenderness may migrate from one part of the chest to another. Pain is elicited by pressure on any part of the chest. This fact is important from the diagnostic point of view, since it demonstrates that the tenderness in this symptom complex is different from the so-called trigger zone described by Weiss and Davis [1] and Travell and her associates [2] that, when pressed, produces pain in distant areas such as the heart. The skin possesses normal color and texture. Surface temperature is normal; there are no dysesthesias and no evidence of radicular or truncular nerve involvement. Pressure on the spinous processes does not produce pain. There are no visible or palpable structural alterations of the chest wall. Inflammatory and trophic changes are absent. The breasts are free of demonstrable pathology. Examination of the remainder of the body shows no abnormality associated with or related to this symptom complex. Blood cell count, erythrocyte sedimentation rate, urinalyses, and x-rays are normal. There are no laboratory signs of inflammation, hypersensitivity, infection, or metabolic aberrations associated with the condition. Electrocardiograms taken during the acute exacerbations, as well as those taken between the attacks, remain unchanged. Hyperventilation is frequently seen among patients suffering from this type of pain. The electrolyte disturbances that occasionally result from hyperventilation lead to minor electrocardiographic changes that, under the circumstances, are easily misinterpreted as indicative of coronary insufficiency.

HISTOPATHOLOGY

Biopsies have been performed in a small number of cases and hence are of limited statistical value. The results show, however, that the histological changes are variable. In one case, that of a patient who had this condition for seven years, biopsy of the skin and underlying soft tissues, intercostal muscles, and cartilage of the rib showed lymphocytic infiltration, some muscular degeneration, and evidence of chronic inflammation in the perichondrium as well as the connective tissues surrounding it. In the second case, in which the condition had been present for three years, the only positive finding was a moderate increase of collagen fibrils without concomitant evidence of cellular infiltration. Three biopsies performed in patients with a history of disease of less than a year's duration yielded normal results.

DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS

A positive diagnosis depends critically on the index of suspicion maintained for this syndrome. The persistence of chest pain after an attack of myocardial infarction should always be regarded as highly suggestive of the postinfarction variety of this syndrome. This is particularly true if the pain is not associated with other manifestations of coronary artery disease. However, as the syndrome occurs in individuals without coronary disease, a positive history of myocardial infarction is not to be regarded as a *sine qua non* of this syndrome. Even though the incidence of the postinfarction variety of this syndrome is much higher than that of the variety unassociated with coronary disease, the latter occurs with sufficient frequency to warrant its consideration in otherwise healthy persons complaining of persistent anterior chest pain.

In the differential diagnosis between this symptom complex and other conditions, one must consider all affections leading to persistent pain of the anterior chest wall. Coronary artery disease is the diagnosis most commonly entertained; however, patient questioning and careful physical examination will reveal certain major differences: 1. The pain in coronary artery disease, namely, angina pectoris, is paroxysmal and precipitated by such factors as physical exertion and emotional tension. Attacks of angina pectoris are often preceded by heavy meals and are short; pain of the anterior chest wall syndrome tends to be continuous, with acute exacerbations. Physical exertion and emotional tension do not appear to play an important role in precipitating acute exacerbations. 2. Radiation of the pain in angina pectoris may be characteristic, while pain of this condition does not radiate outside the boundaries of the thoracic cage. 3. The vasomotor accompaniments of angina pectoris are absent in this condition. 4. A continuous pain of coronary origin is apt to be due to coronary occlusion or severe coronary insufficiency, which are invariably associated with other symptoms and signs. Pain of this condition, although continuous and of long duration, is associated with no systemic, respiratory, or cardiac symptoms. Temperature, erythrocyte sedimentation rate, and blood cell counts remain normal. 5. Electrocardiograms taken during the paroxysmal exacerbations of pain in coronary artery disease often show S-T and T changes that may be characteristic; these are not found in the anterior chest wall syndrome. 6. Pain of angina pectoris is relieved completely or partially with glyceryl trinitrate. Pain of this condition fails to respond to this therapy. 7. Although some tenderness of the chest wall may be present in angina pectoris, it is usually mild and tends to disappear after termination of the attack, whereas tenderness in this condition is persistent and exquisite. 8. Finally, prompt improvement with a therapeutic diagnostic test with corticotropin, cortisone, and radiation therapy may provide a clue to the correct diagnosis, for these measures are of no avail in patients with angina pectoris or coronary insufficiency.

An important and relatively common source of anterior chest pain is hypertrophic osteoarthritis of the cervicodorsal spine associated with involvement of the posterior roots.[3] However, the presence of tenderness over the spinous processes and the anterior portion of the intercostal spaces, the characteristic distribution of neurological signs and symptoms, and the x-ray findings of osteo-

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1. Weiss, S., and Davis, D.: The Significance of the Afferent Impulses from the Skin in the Mechanism of Visceral Pain: Skin Infiltration as a Useful Therapeutic Measure, Am. J. M. Sc. **176**: 517, 1928.

2. Travell, J., and Rinzler, S. H.: Relief of Cardiac Pain by Local Block of Somatic Trigger Areas, Proc. Soc. Exper. Biol. & Med. **63**: 480, 1946. Rinzler, S. H., and Travell, J.: Therapy Directed at the Somatic Component of Cardiac Pain, Am. Heart J. **35**: 248, 1948.

3. Sampson, J. J.: Problems in Recognition of Coronary Heart Disease, Geriatrics **9**: 251, 1954.

arthritis are usually sufficient to substantiate the correct diagnosis. Esophageal hiatal hernia frequently causes anterior chest pain; however, this condition is associated with certain digestive symptoms and can be readily diagnosed roentgenologically with the use of proper technique. Tenderness of the chest wall is absent in hiatal hernia. Affections of the mediastinum, pleura, and pericardium can be diagnosed with reasonable ease. Diseases of the bone involving the ribs may create symptom complexes similar to the anterior chest wall syndrome. Among these, metastatic involvement of the ribs, eosinophilic granuloma, and multiple myeloma may be recalled, all of which have specific x-ray findings and other corollary manifestations. X-ray of the ribs is negative in the condition under discussion.

Tietze's disease may simulate the anterior chest wall syndrome very closely. In this condition, according to the available literature,[4] pain and tenderness are limited to the costal cartilages and the superjacent tissues. The cartilages most commonly involved in Tietze's disease are those of the second ribs. There may be visible hypertrophy and tumefaction of those cartilages. The history of patients with Tietze's disease reveals factors such as trauma, respiratory infection, and malformation of the dorsal spine. In the condition under study, on the other hand, tenderness is diffuse and generally lower than the level of the second rib. The history, insofar as the factors mentioned above are concerned, is negative.

Other musculoskeletal conditions of the chest wall may be hard to distinguish from the syndrome under discussion. Muscle strain is usually preceded by violent exercise and is of short duration. It is seen in athletes and people involved in strenuous muscular work. Pain resulting from direct trauma to the anterior chest wall may be diagnosed by a careful history. Neurological affections that give rise to neuralgias may closely simulate the anterior chest wall syndrome; however, the distribution of the objective and subjective sensory changes in the territory of the involved nerves is sufficient to allow one to differentiate between the two conditions.

The disease often feared in women is carcinoma of the breast. Not infrequently, women suffering from pain of the anterior chest wall show great anxiety about breast malignancy. As a matter of fact, cancerphobia is a not uncommon outcome of this condition, apparently due to its persistence and its failure to respond to palliative therapy. Painful diseases of the breast, particularly the various forms of chronic mastitis, may be closely simulated by this symptom complex. In the former, however, there are objective evidences of induration and hyperplasia, and tenderness is often limited to the glandular substance of the breast. Furthermore, that part of the thoracic cage on which the breast lies is not tender on pressure, as can be shown by pushing this organ to one side and examining the subjacent ribs and the intercostal spaces. In the anterior chest wall syndrome, tenderness on pressure over the musculoskeletal structures underlying the breast persists after this organ is pushed away from its normal position.

Since the basic process responsible for pain of
anterior chest wall may involve areas other than th
mentioned earlier, it may resemble diseases of the g
bladder and other subphrenic viscera. We encounte
one patient in whom the condition involved the anter
lower part of the chest wall on the right. This patient
become convinced that he had some type of neopl
His suspicion was strengthened by the high incidenc
malignancy in his family.

TREATMENT

The usual therapeutic measures directed at coro
artery disease are not effectual and may be harmful.
only do they serve to mask the true nature of the co
tion but they also decrease the patient's morale. Du
its persistence, the pain is apt to create a great de
anxiety in the patient; hence, reassurance is of th
most importance. Patients are often convinced that
suffer from a persistent heart disease; they have di
ished their physical activity to a minimum. Needle
say, the damage inflicted by prolonged physical re
manifold and, at times, too great to be compensated
The patient should be persuaded that the pain is n
cardiac origin; he should be urged to be more active
physically and mentally. In this connection, the phys
will, undoubtedly, exercise caution if the patient
the convalescent stage of myocardial infarction
suffering from severe coronary arteriosclerosis or ca
decompensation. With the initiation of activity, it i
uncommon to observe that the patient's attitude to
his condition is thoroughly changed. He begins to
his pain progressively less incapacitating, even th
both pain and tenderness persist. Removal of the
complex is sufficient to give some relief by virt
raising the pain threshold. Afterward, institutio
proper physical therapy, breathing exercise, and
cular exercise may be all that is necessary to erad
the condition. To be sure, a large majority of the pa
improve once the fear of heart disease is remove
the proper emotional attitude is restored. If the a
measures should fail to bring about a complete cu
if the pain is so severe that more radical therapy is
ranted, or if the emotional condition of the patie
such that the rapid relief of pain is desirable, co
tropin, corticosteroids, or radiation therapy may be
Corticotropin is given in moderate doses of 100 to
mg. per day for two days, after which the doses ar
creased gradually until the daily dosage is lowere
25 mg. a day within a week. The response usual
strikingly prompt; in the majority of cases the pain b
to subside on the second day of therapy. At the e
the course of corticotropin therapy, the patient is us
completely free of pain. If residual pain persists,
therapy may be substituted for corticotropin for a pe
of a few days. Therapy may be begun with cortis
however, corticotropin seems to be advantageous.
dose of cortisone is also moderate, 100 to 150
per day, with a gradual decrease in about one
to 10 days. Radiation therapy has been found to be
ful. It is used as the sole treatment and after corticotr
therapy has been discontinued. In our hands, the tr
ment outlined above has been very successful. The
retaining properties of the moderate doses of cort

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[4] Gill, A. M.; Jones, R. A., and Pollak, L.: Tietze's Disease (Non-Suppurative Non-Specific Swellings of Rib Cartilage), Brit. M. J. 2: 155, 1942. Geddes, A. K.: Tietze's Syndrome, Canad. M. A. J. 53: 571, 1945.

tropin and corticosteroids have not presented any problem in these cardiac patients. We have seen no evidence of coronary circulatory insufficiency after the conclusion of therapy in our patients. It is not uncommon to see recurrence of pain after discontinuation of therapy; the recurrences, however, respond to the therapy outlined above as readily as the original condition. Breathing exercise, as prescribed by a physical therapist, is of unquestionable usefulness. It strengthens the respiratory muscles that, due to the pain associated with deep breathing, may have undergone disuse atrophy. Hyperventilation usually ceases after patients lose their anxiety and are reeducated toward restoring normal breathing habits.

If anxiety is a prominent feature, it may be desirable to use procaine infiltration, for psychological reasons only, to eliminate the tenderness and pain momentarily and enable the patient to see that his pain is not of cardiac origin. This technique may be of sufficient persuasiveness to remove the fear of physical exercise and facilitate further therapy. A significant proportion of these patients are taking digitalis and coronary vasodilators, perhaps unnecessarily. It is advisable to discontinue use of these drugs if indications are lacking.

It is to be added at this juncture that the condition under discussion may be associated with angina pectoris. Great caution must be exercised in evaluating a patient's signs and symptoms in the light of careful history and physical examination. If necessary, hospitalization must be advised for the purpose of evaluation. The treatment of patients suffering from both conditions is obviously more complicated than the treatment of patients afflicted with the anterior chest wall syndrome alone; however, the therapy that has been outlined for the syndrome will abolish those components of the symptomatology accounted for by the condition and hence has diagnostic value. As pointed out earlier, a therapeutic test with corticotropin, cortisone, or x-ray therapy is quite safe in patients irrespective of the condition of the coronary arteries. After a period of approximately a week, treatment with the agents mentioned above will eliminate the somatic component of the chest pain and reevaluation of the patient will reveal the presence of true angina pectoris.

It is to be pointed out that, in evaluating electrocardiographic findings of patients suffering from anterior chest pain, one must be cognizant of certain S-T segment and T-wave changes that occasionally occur with anxiety, fear, and other circumstances in which functions of the anatomic nervous system are disturbed. One must recognize the prevalence of anxiety in patients suffering from this symptom complex so that the value of electrocardiographic findings mentioned above will be properly appreciated.

REPORT OF CASES

CASE 1.—A 44-year-old housewife sustained a posterior myocardial infarction in January, 1954, for which she was hospitalized in another city for six weeks. After discharge from the hospital, she was completely asymptomatic until April, 1954, when she suffered a severe attack of anterior chest pain diagnosed as coronary insufficiency. Electrocardiograms and other laboratory procedures, however, failed to show any changes over the previous ones. The patient continued to have mild, steady anterior chest pains after discharge. This pain persisted and became much more severe about six weeks before admission to this hospital. During this time, she received various coronary vasodilators without relief. There had been no systemic symptoms associated with the pain. The pain was most severe in the midline and the medial end of the second to the fifth intercostal spaces. It was described by the patient as "soreness" and "different from the attack in January." It was aggravated by violent movements and rotation of the chest. Posterior extension of the chest brought about a feeling of "pull" on the anterior chest wall. At no time was the pain associated with dyspnea, thoracic oppression, vascular collapse, or weakness. It did not radiate to the left upper extremity. During the months of bed rest and continuous chest pain she became profoundly depressed and was constantly aware of the fact that she was a cardiac cripple. Numerous drugs had been administered to no avail.

On physical examination she appeared to be in good health. Temperature, white blood cell count, sedimentation rate, and x-ray of the chest were normal. The heart was normal in size and by auscultation. The electrocardiogram was characteristic of an old posterior myocardial infarction. There were no S-T and T changes. The only striking finding was a diffuse tenderness of the soft tissues of the anterior chest wall and the costal cartilages of both sides. The area of tenderness extended from the clavicles to the xiphoid process and laterally to the anterior axillary lines. The tenderness was exquisite on the cartilages and the adjacent intercostal spaces of the right third to fifth ribs. The pectoralis muscles were also tender on pressure. The patient was immediately given permission to move about at will. She was told that her pain was not of coronary origin. It was noted that physical exercise did not precipitate any pain or aggravate the already existing pain. The pain disappeared for the first time in several months after the patient was given corticotropin, 100 mg. for four days. At the end of this period, corticotropin was withdrawn. This was followed by prompt return of the symptoms. She was then given a course of x-ray therapy in order to determine whether the response to this therapeutic agent would be as satisfactory as it was to corticotropin. After four days of x-ray therapy, the pain disappeared completely. The patient is now asymptomatic and enjoys good health. From an emotional point of view she has improved remarkably.

This case demonstrates the ease with which this symptom complex, when occurring after coronary occlusion, may be interpreted as angina pectoris and coronary insufficiency and treated as such. Furthermore, it illustrates the prompt, favorable response to corticotropin and x-ray therapy. It also demonstrates the usefulness of corticotropin and x-ray therapy as agents for diagnostic tests.

CASE 2.—A 54-year-old housewife was first seen on Nov. 1, 1954. Her chief complaint consisted of persistent anterior chest pain of five months' duration. Her cardiac history dated back to January, 1950, when she suffered an acute myocardial infarction. She was placed in another hospital for four weeks and was free of symptoms upon discharge. The patient remained asymptomatic until January, 1952, when she had her second attack. This time, however, no "fresh infarction" was found, and the patient continued to enjoy good health until February, 1953. Since that time, she had been subject to numerous attacks of chest pain of varying intensity. She was hospitalized on six occasions for acute attacks of chest pain diagnosed as coronary insufficiency, for which she was given anticoagulants and other cardiac drugs for varying periods of time. Symptoms of menopause appeared and aggravated the previously existing symptoms. The attacks of chest pain, most of which were recognized as coronary insufficiency, appeared with greater frequency. She began to suffer from a continuous, mild pain in the interval between the attacks. During one of her hospitalizations she was given digitalis, presumably for rapid heart action, and was maintained with this drug until the time of admission to this hospital.

During the five months preceding her admission to this hospital, she suffered from a persistent, severe chest pain with numerous exacerbations diagnosed variously as coronary insufficiency, gallbladder pain, and psychoneurosis. She was given a variety of drugs by a number of physicians whom she had consulted for the acute attacks of pain. Numerous electrocardiograms were taken in this period of time, and they were all identical; however, judging by the size of the R wave, electrocardiograms denoted improvement, as the R waves increased in height over the period of four years, although the patient was hospitalized five times with a presumptive diagnosis of myocardial infarction. When she was seen in this hospital, the patient described her pain as continuous, drawing, and superficial. The pain was associated with a sensation of squeezing pressure on the lateral chest walls and tightness in the skin overlying the sternum. She stated that the pain under discussion, unlike the anginal attacks with which she was familiar, was not accompanied by dyspnea, weakness, sensation of heaviness, and radiation to the left upper extremity. Furthermore, it was not relieved by glyceryl trinitrate. Her history and family history were unrevealing.

Physical examination showed a normally developed, healthy-looking female. Extreme anxiety and frustration were evident in her facial expression. There were no outward signs of heart failure. The heart was moderately enlarged, with the apex beat between the midclavicular and anterior axillary lines. There was a grade 2 systolic murmur at the apex. The heart otherwise was not remarkable. There was a marked tenderness over the major portion of the anterior chest wall, and it was most exquisite near the xiphoid process and in the medial portion of the second, third, and fourth intercostal spaces and the adjacent structures. The skin overlying these areas was not different from the skin of the adjacent normal regions. It appeared to the examiner that both soft tissues and the underlying cartilages were the seat of tenderness. The breasts appeared normal. There was no evidence of nerve involvement. The electrocardiograms showed the old anterior myocardial infarction with some degree of S-T segment elevation in V_1 to V_4. This was not considered to be indicative of coronary insufficiency, as it had been present in all the tracings obtained in the period of less than four years since she had recovered from the first attack of myocardial infarction (see figure).

Chest x-ray showed moderate cardiac enlargement with normal pulmonary vascular markings. This patient was given cortisone, 100 mg. daily for four days. The chest pain began to subside on the third day and was completely absent after four days of therapy. At present she is completely asymptomatic. Incidentally, she was advised to stop taking digitalis, quinidine, and bishydroxycoumarin (Dicumarol), which she had been taking for some time before her admission to this hospital. This improved her cardiac function considerably.

This case also demonstrates how the anterior chest wall syndrome is misdiagnosed and treated as persistent coronary insufficiency. Surprising is the fact that, in spite of stationary electrocardiograms and normal white blood cell count, sedimentation rate, and cardiac functions, the patient's pain was thought to be of coronary origin by all the physicians she consulted during the period of four years. The importance of awareness of this symptom complex and the value of the therapeutic test with corticotropin is again exemplified.

Case 3.—A 50-year-old housewife was seen in November, 1954, because of a continuous chest pain of 12 years' duration. She suffered an acute attack of coronary occlusion in 1942, after which she developed anterior chest pain that persisted up to the time of admission to this hospital. She consulted numerous physicians, all of whom confirmed the diagnosis of persistent coronary insufficiency and advised restriction of physical activity; however, the pain was not precipitated by physical exertion or emotional tension. No relationship of the pain to heavy meals was noted. Glyceryl trinitrate was ineffectual. The patient was subject to paroxysms of pain, some of which occurred during the night upon change of position in bed. The patient volunteered the information that the chest was sore on touch, and the soreness was associated with a feeling of tightness of the chest wall. She suffered another attack of coronary thrombosis in May, 1953. She recovered from this attack uneventfully but continued to have the above-mentioned persistent anterior chest pain. After the death of her husband, she was forced by her economic status to accept an eight-hour-a-day job as a salesgirl, which necessitated standing on her feet for hours at a time. This was done in spite of her previous physician's advice to the contrary. She w highly surprised when she found herself perfectly capable handling the job.

Physical examination revealed a healthy-looking female wi a nervous appearance and noticeable facial flush. No respirat distress and no evidence of heart disease were noted. There w no signs of hyperthyroidism. The most significant physi finding was tenderness of the anterior chest wall, which was m exquisite in the center of the sternum and decreased radially. T tenderness seemed to be in the bony structures as well as the sk The heart was slightly enlarged to the left. There were no ot significant physical findings. This patient was given reassura and was persuaded that her pain was not of cardiac origin. S was urged to keep her job. At present she is working efficie and has no symptoms.

This case demonstrates that reassurance per se m be all that is necessary for removing phobia of he disease, after which the patient learns to endure the ch pain without anxiety.

Case 4.—A 61-year-old housewife was admitted to the Ce of Lebanon Hospital clinic on Nov. 21, 1954, with a histor chest pain of three to four years' duration. The history of h disease dated back to 1932, at which time she suffered f dyspnea and was digitalized. She continued to have some e tional dyspnea but was active physically. Three to four years fore admission, she began to have periodic anginal attacks, a as time went on, she became more and more dyspneic, wi significant diminution in her physical capacity. The anginal tacks consisted of a feeling of pressure and heaviness on chest, with radiation of pain to the left shoulder and down left arm. She had been taking glyceryl trinitrate with good sults. At the time of admission, she could walk only a frac of a block before becoming short of breath. Recently, howe she had been aware of what she called "soreness" of the terior part of the chest wall and left breast. This soreness persistent and, according to the patient, differed from the orig anginal pain. It did not respond to glyceryl trinitrate. It was gravated by lying on the left side. Her history and family tory were unremarkable.

Physical examination revealed a moderately obese fem There were no outward evidences of congestive heart failure. significant finding was an exquisite tenderness of the ante chest wall in the apical region that progressively diminished i directions. It extended to the left clavicle, left border of the num, and left posterior axillary line. The skin overlying the te areas did not seem to be very tender. There were no obje changes in the soft tissues. There were no trigger zones an evidences of neuralgia. The intercostal muscles seemed t exquisitely tender. The most tender spot was on the fifth rib the adjacent intercostal spaces at the nipple line. The heart slightly enlarged, and heart sounds were normal except for a soft grade 1 systolic murmur at the apex. The remainder of physical examination was not remarkable. Laboratory tests w all within normal limits. Electrocardiograms showed prolon P-R intervals averaging 0.26 second. There was wandering p maker and digitalis effect with left ventricular hypertrophy. patient left the hospital before treatment was instituted.

For a number of years this patient undoubtedly h coronary heart disease with angina pectoris on wh the somatic type of pain was superimposed.

Case 5.—A 75-year-old female was admitted to the Cedar Lebanon Hospital clinic for recurrent attacks of chest p on Nov. 20, 1954. The electrocardiogram taken before admis showed left bundle-branch block that was thought to favor di nosis of recent myocardial damage. She had had high bl pressure and "heart trouble" for 15 years and had been tak digitalis for the same period of time. Five months prior to adm sion, this patient suffered a severe heart attack diagnosed as m cardial infarction. She had been incapacitated and suffered fr innumerable attacks of anterior chest pain since the attack coronary occlusion. In addition to the episodic anginal pain, had been conscious of a persistent dull ache over the anter chest wall that was most severe at the apical region for two months. Her history and family history were noncontributory.

On physical examination the striking finding was a marked tenderness over the left anterior chest wall that was most severe and excruciating at the apical region of the heart, where the maximal pain was felt. The tenderness decreased in a radial fashion, and it extended as far up as the clavicle and as far back as the posterior midline. The tenderness was associated with a severe pain, which was continuous and uninterrupted, involving the same areas and often misdiagnosed as anginal pain. There had been no signs or symptoms of congestive heart failure during the present hospitalization. The presence of tenderness over the chest wall was believed to speak in favor of somatic anterior chest pain. This patient did not stay in the hospital long enough for institution of treatment.

This case demonstrates that such nonspecific electrocardiographic changes as bundle-branch block in the presence of the somatic chest pain strengthen the suspicion for coronary artery disease and resultant myocardial damage. An abnormal electrocardiogram does not make the diagnosis of active heart disease.

Case 6.—A 27-year-old housewife was seen in 1950 because of a seven year history of unremitting precordial pain, appearing most commonly after meals or upon emotional upheavals. The pain was described as sharp and penetrating and of sufficient severity to warrant the use of narcotics on many occasions. Numerous diagnoses were entertained, namely, coronary artery disease, cardiospasm, esophageal hiatal hernia, and psychoneurosis, but none was substantiated. The only significant point in her history was an automobile accident resulting in brain concussion four years before the onset of chest pain. The patient had been of a nervous disposition all her life. She had become addicted to meperidine (Demerol) hydrochloride approximately one year before her first visit.

Physical examination revealed a normal-appearing woman in no distress. Blood pressure, heart rate, lungs, and abdomen were normal. X-rays and electrocardiograms failed to show any evidence of heart disease. The only positive finding was a marked tenderness on the anterior chest wall, which was most intense in the parasternal areas of the second to fourth intercostal spaces bilaterally. Due to this patient's uncooperativeness, it was not possible to administer a complete course of therapy; however, she was impressed when her pain was relieved by procaine (Novocain) hydrochloride infiltration of the soft tissues of the chest wall.

This case exemplifies the occurrence of somatic chest pain in an apparently healthy individual with no history and no evidence of heart disease. Whether there was a causal relationship between the brain trauma and the painful condition that subsequently developed is a matter of conjecture. The patient became addicted to meperidine as a result of persistent pain and unwarranted use of narcotics.

COMMENT

Chest pain following myocardial infarction is most likely to be attributed to coronary insufficiency, angina pectoris, or anxiety neurosis. Actually, a large portion of victims of coronary artery disease are free of anginal pain for the months or years after coronary thrombosis. Contrary to this usual sequence of events, it is not uncommon to encounter patients who, after an attack of myocardial infarction, continue to have a steady soreness of the anterior chest wall unaccompanied by signs and symptoms of coronary artery disease or pericarditis. This condition is not associated with such ordinary accompaniments of angina pectoris as thoracic oppression, heaviness, dyspnea, and flatulence, nor is there radiation to the areas commonly influenced by true angina pectoris. The patients' general health is strikingly good. The pain does not respond to glyceryl trinitrate. A similar type of pain was described as early as 1923 by Wearn,[5] who reported a case of coronary artery occlusion in which a "dull ache" developed over the precordium. The symptom was aggravated by exercise but was not relieved by glyceryl trinitrate. Eckerson and associates [6] wrote in 1928, "It is not uncommon for patients who have suffered coronary thrombosis to be subject for varying periods to a type of thoracic pain which is distinguishable from the ordinary picture of angina pectoris and which is of somewhat different significance." Of the 12 out of 23 patients who survived coronary thrombosis, 3 developed this type of pain. This pain occurred within a few days to few weeks after coronary occlusion. Curiously enough, the association of heart disease with somatic musculoskeletal manifestations was first noted by orthopedists. Thus, King and Holmes,[7] in 1927, noted that a significant proportion of the 450 patients with painful shoulders had heart disease. Howard [8] was first to describe what he called "periarthritis of the shoulder" appearing in the course of coronary thrombosis and again pointed out the association of cardiac disorders and somatic changes of the shoulder. Among the cases of periarthritis reported by this author, one can find four cases in which sustained precordial pain occurred before or after the appearance of stiff painful shoulders. In one of these cases the chest pain subsided when the shoulder pain was cured. Boas and Levy,[9] in a paper dealing with shoulder pain and angina pectoris, cited two cases (cases 1 and 3) in which hyperalgia and tenderness of the chest wall were associated with somatic changes of the shoulder. Askey,[10] in 1941, was first to note that the changes occurring in the shoulder and hand in patients convalescing from myocardial infarction are parts of the same process, hence adding to the understanding of the condition and demonstrating that the symptom complex was not necessarily limited to one joint. Allison [11] wrote in 1950 on pain of the chest wall simulating heart disease and stated that "fibrositic" lesions of the chest wall are very common accompaniments of coronary disease. It is thus evident that visceral changes can give rise to somatic alterations of the adjacent musculoskeletal structures. Perhaps the best example of this phenomenon is the shoulder-hand syndrome that occurs in patients with coronary artery disease and is indistinguishable from that which follows injury to the arm and many other conditions.

A great deal has been written to explain this curious viscerosomatic interrelation. Factors such as disuse, reflex vasomotor changes, summation of impulses similar to the state of affairs that leads to causalgia and poor

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5. Wearn, J. T.: Thrombosis of the Coronary Arteries, Am. J. M. Sc. **165**: 250, 1923.

6. Eckerson, L. B.; Roberts, G. H., and Howard, T.: Thoracic Pain Persisting After Coronary Thrombosis, J. A. M. A. **90**: 1780 (June 2) 1928.

7. King, J. M., Jr., and Holmes, G. W.: The Diagnosis and Treatment of 450 Painful Shoulders, J. A. M. A. **89**: 1956 (Dec. 3) 1927.

8. Howard, T.: Cardiac Pain and Periarthritis of the Shoulders: Angina Pectoris, Aortitis or Cardiac Infarct Complicated by a Stiff and Painful Shoulder, M. J. & Rec. **131**: 364, 1930.

9. Boas, E. P., and Levy, H.: Extracardiac Determinants of the Site and Radiation of Pain in Angina Pectoris with Special Reference to Shoulder Pain, Am. Heart J. **14**: 540, 1937.

10. Askey, J. M.: The Syndrome of Painful Disability of the Shoulder and Hand Complicating Coronary Occlusion, Am. Heart J. **22**: 1, 1941.

11. Allison, D. R.: Pain in the Chest Wall Simulating Heart Disease, Brit. M. J. **1**: 332, 1950.

circulation, and anoxia secondary to heart failure in cardiac patients have been incriminated. Steinbrocker,[12] and Steinbrocker and his associates,[13] introduced the term "reflex neurovascular dystrophy of the upper extremities." They explained the trophic alterations of the somatic structures on the basis of anatomic connections existing between the afferent visceral nerves and the efferent sympathetic and trophic neurons of the extremities. The impulses from injured myocardium are supposed to enter the spinal cord gray matter, where they pour into the vast internuncial pool. Numerous interconnecting neurons in the internuncial system transmit these incoming impulses to the neighboring motor neurons of the anterior horn (trophic) and posterolateral column (sympathetic). The motor neurons in these vital centers are influenced, leading to muscular dystrophy and vasospasm respectively. The interconnecting neurons of the internuncial system extend over many segments of the spinal cord, whereby impulses entering one segment of the cord can influence motor neurons situated at a significant distance from that segment. One author [11] states that at least one pathway can be found connecting any two central neurons so that impulses may be conducted from one to the other.

The trophic and vascular changes and the secondary inflammatory alterations of the upper extremities occurring after myocardial infarction are explained on the basis of the proximity of the corresponding centers in the spinal cord, resulting in a steady bombardment of the trophic and sympathetic centers of the upper extremities. Actually, from an anatomic point of view, the central motor neurons of the anterior chest wall are just as close to the afferent cardiac nerves as are the motor neurons of the upper extremities. The afferent cardiac nerves enter the cord at the level of C-7 to D-4, where motor neurons of the upper portion of the chest wall are located. Moreover, the rich internuncial system in this area could easily establish connections between the afferent cardiac nerves and the motor neurons of the lower part of the chest. It is entirely possible that somatic anterior chest wall pain is pathogenically analogous to the shoulder-hand syndrome; however, this is pure conjecture. There is no evidence for or against it. If it is assumed, however, that the condition stems from cardiac or other visceral pathologies, one logical basis for explanation of the somatic alterations would be that which utilizes the neurovascular concepts advanced by Steinbrocker.

The mechanism of action of corticotropin, corticosteroids, and x-ray in this condition is unclear. The common denominator among corticotropin, cortisone, and x-ray is probably an anti-inflammatory action against chronic inflammations. It is possible that the beneficial effect of these agents is exerted through their anti-inflammatory action. Admittedly, our knowledge of the pathological physiology and the histopathology of the condition is scanty. The mode of action of the therapeutic agents mentioned above will be more clearly understood when more is known about the pathogenesis of the symptom complex.

SUMMARY AND CONCLUSIONS

The anterior chest wall syndrome is a symptom complex consisting of somatic involvement of the anterior chest wall leading to pain and tenderness. Two distin varieties of this syndrome are the postinfarction variet that begins weeks to months after an attack of acute myo cardial infarction and the variety unassociated with coro nary disease.

Its cause is unknown. It is possible, however, th this condition is pathogenically analogous to the shou der-hand syndrome and hence possibly of neurovascul origin. Histological changes are inconsistent. The cond tion occurs very commonly after myocardial infarctio at varying intervals; however, it has been observed noncardiac individuals and generally lasts months, a even years. It may be associated with angina pector causing persistence of pain and creating a picture easi confused with that of status anginosus.

The symptom complex is often misdiagnosed as cor nary artery disease and treated accordingly. This leads a chain of events in which patients arrive at the convi tion that they have incurable heart disease and devel profound anxiety and depression. The therapeutic mea ures exert their noxious influences to aggravate t symptoms and perhaps add such complications as dr addiction. In such undesirable state of affairs, the ph sician is not spared fear and frustration. The presen of tenderness of the anterior chest wall and absence signs and symptoms of progressive coronary artery d ease are the most important diagnostic features of t symptom complex. Therapeutic tests with corticotrop corticosteroids, and x-ray therapy are generally sufficie to uncover the true nature of the pain.

The response of the symptom complex to proper th apy is usually gratifying. Two to three days of thera with corticotropin or cortisone is often sufficient to bri about much relief of pain. More prolonged treatme with these agents cures the condition completely as rule. If protracted treatment with the corticoids is u desirable, roentgen radiation may be substituted it in two to three days. The full duration of thera does not exceed 7 to 10 days. In the event of recurren of the symptom complex, therapy may be repeated.

The condition is believed to occur very common Its recognition is of great practical importance. It m be advisable that all patients complaining of anteri chest pain, particularly those with a history of myocard infarction, be examined carefully for the presence tenderness of the chest wall. A recent paper by E wards [15] on musculoskeletal chest pain following my cardial infarction clearly describes the postinfarctio variety of this syndrome. Therapeutic tests with cortic tropin, cortisone, and x-ray are entirely safe and m be resorted to with impunity.

4751 Fountain Ave. (29) (Dr. Prinzmetal).

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[12] Steinbrocker, O.: Painful Homolateral Disability of Shoulder a Hand with Swelling and Atrophy of Hand, Ann. Rheumat. Dis. 6: 1947.

[13] Steinbrocker, O.; Spitzer, N., and Friedman, H.: The Should Hand Syndrome in Reflex Dystrophy of the Upper Extremity, Ann. I Med. **29**: 22, 1948. Steinbrocker, O.; Friedman, H. H., and Lapin, Scientific Exhibit: The Shoulder-Hand Syndrome (Reflex Neurovascu Dystrophy of the Upper Extremity), Postgrad. Med. **16**: 46, 1954.

[14] Lorente de No, R.: Analysis of the Activity of the Chains Internuncial Neurons, J. Neurophysiol. **1**: 207, 1938.

[15] Edwards, W. L. J.: Musculoskeletal Chest Pain Following My cardial Infarction, Am. Heart J. **49**: 713, 1955.

IMPORTANCE OF TUBERCULIN TESTING OF SCHOOL CHILDREN—A TWENTY-EIGHT YEAR STUDY

J. Arthur Myers, M.D., Frederick G. Gunlaugson, M.D., Minneapolis, Edward A. Meyerding, M.D., St. Paul
and
Jean Roberts, M.S., Minneapolis

Speaking before the New England Pediatrics Society, Boston, March 12, 1926, Allen K. Krause, Baltimore, said, "It is now almost ten years since a large proportion of the children of your neighboring community of Framinghan was being tested for tuberculous infection. Their infants then have now entered late childhood and their children become youths. If a new series of tests were now performed on Framingham's children, comparable in number, age and condition to those tested from 1917 on, any marked deviation from the figures of a decade ago would render the study one of the most important and significant ever undertaken in the epidemiology of tuberculosis. Standing alone, the results of Framingham's test of 1917 to 1920 mean comparatively little. They merely confirmed what was already common knowledge. But, set over against a new series of records, they might serve to lend scientific support to new concepts of the epidemiology of tuberculosis."[1]

Although we had employed the tuberculin test extensively since 1920 and had sought persons with contagious disease among reactors' associates, we were inspired by Krause's statement to undertake a long-term study. F. E. Harrington, commissioner of health, Minneapolis, arranged for an investigation in 24 parochial schools selected geographically so as to present a good sampling of the childhood population of the city. It was planned to test in these schools about once in 10 years, as this would determine changes that might occur in the tuberculosis infection rate among children from generation to generation and might also be productive of other important information. Tuberculin testing was done in these schools in 1926, 1936, 1944, and 1954. Original tuberculin was administered by the intracutaneous method on each occasion. In 1926 and 1936 the usual two-test method was employed for those who did not react to the first strength. In 1944 and 1954 a single dose of tuberculin consisting of 1 mg. was administered intracutaneously (1 mg. of tuberculin as first dose is not recommended except in low incidence areas). Those who presented areas of induration or edema, or both, of 5 mm. or more in diameter were classified as reactors and all others nonreactors.

RESPONSE TO PROJECT

Response to a school tuberculin-testing program depends largely upon information previously transmitted to parents, personnel, and the children themselves. In 1926, 1936, and 1944 no extensive preliminary educational work was done. Although response improved between 1926 and 1944, at no time was it entirely satisfactory. In fact, it was sometimes stated that one could not hope for as good response in mass tuberculin testing as in mass x-ray surveys. To test the validity of this belief the Committee on Tuberculosis of the American School Health Association in the early 1940's devised a plan whereby schools might be officially certified on the basis of tuberculosis control work in progress. Minnesota was chosen as the demonstration area to determine whether this project could be made practical and effective. A subcommittee consisting of three physicians especially interested in tuberculosis among children was appointed. They prepared qualifications that, if met, would justify official certification of schools. These qualifications were: (1) testing with tuberculin 95 to 100% of children and making x-ray film inspection of the chests of the reactors, (2) testing all school personnel and making x-ray film inspection of the chests of reactors immediately and annually thereafter, (3) completing the examination of all who presented shadow-casting lesions for final diagnosis, and (4) retesting all nonreactors every two years and completing the examination of those who had converted. From the outset this program was popular and created more interest and activity in tuberculosis control in whole communities than any procedure that had ever been introduced.[2] Now 2,100 schools have certificates displayed on their walls, and large numbers of others are well on the way to meet the qualifications. In a four-county sanatorium district Jordan[3] has certified all schools, which means that all personnel cooperated and that the required number of children have been examined.

Since this procedure had not been instituted in a larger city, we decided to test it in our 24 parochial schools in 1954. Tuberculin testing was preceded by an intensive educational campaign over a period of about two months. The nursing staff of the health department and others participated. They met with parent-teacher organizations and conferred individually with principals of schools and other administrators. They distributed explanatory printed material among parents and the entire school personnel. Educational workers of the Minnesota Tuberculosis and Health Association arranged

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Professor of Medicine and Public Health, University of Minnesota medical and graduate schools (Dr. Myers); Director, Bureau of Health Maintenance, Minneapolis Division of Public Health (Dr. Gunlaugson); Executive Secretary, Minnesota Tuberculosis and Health Association (Dr. Meyerding); and Director, Bureau of Public Health Records and Statistics, Minneapolis Division of Public Health (Miss Roberts).

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Mrs. Margaret Degnan, Miss Melvina Palmer, Mrs. Eleanor Sundstrom, and others assisted in organizing and executing this project and compiling and analyzing data in preparation of the manuscript.

[1] Krause, A. K.: Decline of Mortality from Tuberculosis Among Infants and Children, Boston M. & S. J. **194**: 1173, 1926.

[2] Meyerding, E. A.; Slater, S. A., and Jordan, L. S.: Certification of Schools on Basis of Tuberculosis Control Work in Progress, J. School Health **23**: 301, 1953.

[3] Jordan, L. S.; Slater, S. A., and Towey, J. W.: Report of Committee *on Tuberculosis: School Accreditation in the Riverside Sanatorium District*, J. School Health **24**: 187, 1954.

for newspaper articles and radio and television broadcasts, and a special printed pamphlet describing the tuberculin test was distributed to parents and school personnel. An excellent organization was formed in each school for the actual testing in which mothers of children and health chairmen played an important role. It is doubtful if such a response had previously been experienced and recorded. The whole procedure was so thoughtfully and carefully developed from the time of its announcement to completion that it is being published in some detail in pamphlet form.

School and community pride spurred personnel, parents, and the children themselves on to the certification goal. It served as a powerful incentive. For example, in the first school tested one teacher did not respond. On the day of reading tests 72 hours later, she was the first to appear and requested the tuberculin test, stating that she could no longer take the goading of the other members of personnel, parents, and even several children who asked her if she was going to prevent their school from receiving a certificate. In another school on the morning of testing a kindergarten teacher informed the principal that six children in her room were absent. The principal called each mother by telephone and urgently requested that the children be brought in at least long enough for the test. Five promptly responded.

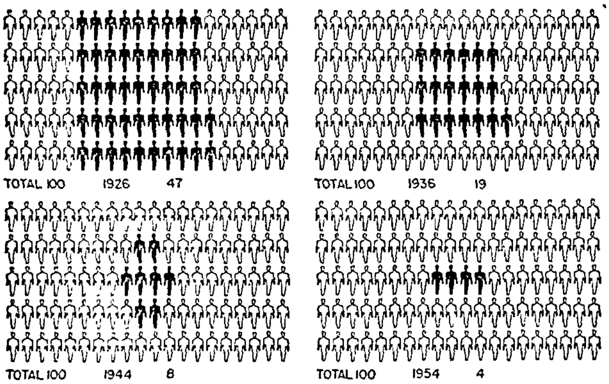

Fig. 1.—Number of tuberculin reactors (black figures) per 100 children for the years 1926, 1936, 1944, and 1954.

RESULTS

In 1926, 47.3% of the children reacted to tuberculin[4] (fig. 1). Evidently this was a definitely lower incidence of infection than had obtained a decade before. Testing in the same city in 1916, Sedgewick[5] found that 70% of the children became infected during the first 14 years of life. Nevertheless, our 1926 tests indicated that almost half of the children had been in contact with tuberculous people or animals or their products. Attempts were then made to afford better protection for the childhood population by adding 200 beds for contagious cases of tuberculosis in the county sanatorium. A hospital with 176 beds for tuberculous veterans was established in Minneapolis, although not all of the patients were from this area. The county medical society, local department of health, and the county tuberculosis association presented each physician with a tuberculin syringe and delivered gratis freshly diluted tuberculin every two weeks. Each physician was asked to administer the test to every person who applied for any kind of examination. This resulted not only in finding an appreciabl number of contagious cases of tuberculosis but also had a fine educational value, both for the medical profession and the public.

The epidemiological work of the health departmen was intensified; and effort was made to examine contact of reported cases. Moreover, many apparently norma children were tested with tuberculin and persons responsible for infecting them were sought. In 1933 and 1934 the school board required its 3,602 employees to be examined for this disease, when 68 were found to have shadow-casting lesions requiring further examination, six of which were already contagious.[6] The veterinary profession had accredited the 87 counties, so the state was designated a modified accredited tuberculosis-free area in December, 1934. The educational work of the tuberculosis association through the sale of Christmas seals was intensified. With these and other activities it seemed that progress should have been made. However, the best measure of success was to test the children who had entered school during the past 10 years. Tuberculin testing in the same grade schools in 1936 showed that the incidence of infected children had decreased from 47.3% 10 years earlier to 18.9%[7] (fig. 1). Thus, approximately four of each five children had been protected against tubercle bacilli.

After 1936 the tuberculosis control program was continued and, wherever possible, intensified. Because F. E. Harrington, commissioner of health, who had made this project possible, was reaching the age of retirement, the next testing was done after eight years. Between 1936 and 1944 the number of unhospitalized, contagious adult cases had decreased. The medical profession was alert, and more unsuspected cases were being found and treated. One private general hospital had established a division for chest surgery. In that division and in physicians' offices collapse therapy converted many contagious cases and prevented many others from becoming contagious. Minneapolis General Hospital established a special chest disease service where persons with pulmonary lesions could be admitted promptly for differential diagnosis. On this service strict contagious disease technique was instituted for the protection of patients, personnel, and visitors and for the education of students and graduates in nursing and medicine. A provision was made whereby recalcitrant patients were placed under quarantine and committed to the sanatorium.

Tuberculin testing in the schools in 1944 revealed 7.7% infected[8] (fig. 1). Thus among each 13 children, one had been unprotected. Between 1944 and 1954 the number of clinical cases of tuberculosis diagnosed decreased so that there was usually no significant waiting list for sanatorium beds. In 1947 a mass photofluorographic survey reached approximately 64% of the adult population. Before this and since, the county tuberculosis association kept mobile x-ray units in almost constant operation. Veterinarians continued their attack on tuberculosis among animals throughout the state with such success that in 1953 only one bovine was found infected in each 5,000 tested. In Hennepin County, where Minneapolis is located, testing of the 45,000 cattle revealed only one reactor. Thus it had become exceedingly rare for a child or an adult to be infected by animals.

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[4] Harrington, F. E., and Myers, J. A.: Studies on Tuberculosis in Infancy and Childhood: Tuberculous Infection Among Minneapolis School Children as Revealed by the Intracutaneous Test, Am. Rev. Tuberc. **14**: 454, 1926.

[5] Sedgewick, J. P.: The Diagnosis of Early Tuberculosis in Children, St. Paul M. J. **18**: 213, 1916.

[6] Harrington, F. E.; Myers, J. A., and Levine, I.: Tuberculosis Among Employees of the Minneapolis Schools, J. A. M. A. **104**: 1869 (May 25) 1935.

[7] Harrington, F. E.; Myers, J. A., and Levine, N. M.: Significance of the Tuberculin Test, J. A. M. A. **108**: 1309 (April 17) 1937.

[8] Myers, J. A.; Harrington, F. E., and Garcia Suarez, E.: The Importance of Detecting Tuberculosis in Children, J. A. M. A. **128**: 852 (July 21) 1945.

In 1954, of the 11,976 children in these 24 schools, 11,818 (98.7%) were tested with tuberculin. Refusals were rare. Most of those not tested were absent from school on the days of testing because of prolonged vacations and illness. Of those tested, 455 (3.9%) reacted (fig. 1). Among the reactors, 25 (5.5%) were from displaced persons' families or from Mexico, Puerto Rico, or the Philippines, where a high percentage of children are infected. The communities in which these children now reside probably are not responsible for their infections, but they now have the responsibility of keeping them under close surveillance. Figure 2 shows the percentages of reactors by age groups (6 to 14 years) at each testing over the 28 year period. The table shows numbers tested and percentages of reactors by age groups in the 1954 testing. The high percentage at ages 4 and 16 presumably is due to the small number tested.

Among the 432 personnel members (administrators, teachers, clerks, cooks, janitors, and bus drivers) only 7 failed to respond. They were all in one school. Of the 425 tested, 199 (46.8%) reacted. The personnel members belong to other generations who were not so well protected against tubercle bacilli as the present group of children. In fact, some of them passed through infancy and childhood when 70% or more of children were infected in this area, and a considerable number were children when we first tested in these schools in 1926 and found 47.3% infected. The failure of seven personnel members who refused to be tested and thus prevented only one school in 24 from attaining the certification goal is cause for comment. Although they were willing to have x-ray film inspection of their chests, it is well known that persons with clear films may have open sinus tracts on parts of the body covered by clothing from which tubercle bacilli containing material exudes. There are records of personnel members of schools refusing examination who even resigned because of insistence on the part of the administration and who were then found to have contagious tuberculosis of which they had been aware for some time. It was such experiences that caused the American School Health Association to demand that 100% of personnel members be examined before issuing a certificate to any school.

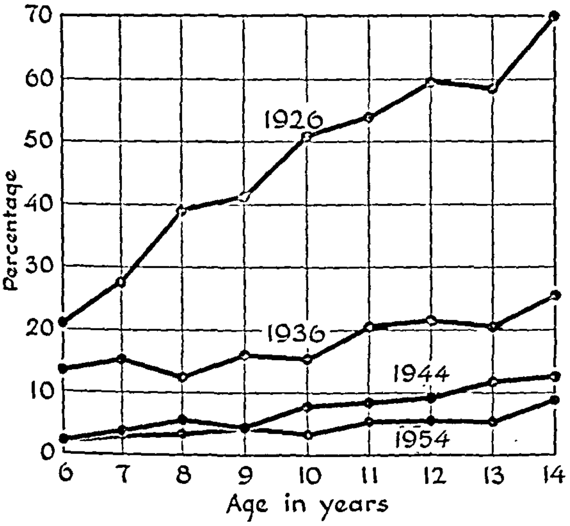

Fig. 2.—Percentage of tuberculin reactors, by age groups, at each testing over the 28 year period.

Tuberculin Reactors by Age Groups, 1954

Age, Yr.	Total Children	Children Tested	Reactors	% Reactors	% Tested
4	4	4	1	25.0	100.0
5	768	754	9	1.2	98.2
6	1,516	1,490	26	1.7	98.7
7	1,532	1,506	46	3.1	98.3
8	1,257	1,241	42	3.4	98.7
9	1,324	1,315	59	4.5	99.3
10	1,424	1,405	47	3.3	98.7
11	1,386	1,367	73	5.3	98.6
12	1,251	1,233	64	5.2	98.6
13	1,179	1,168	61	5.2	99.1
14	264	262	23	8.8	99.2
15	61	57	3	5.3	93.4
16	9	9	1	11.1	100.0
17	1	1	0	0	100.0
Total	11,976	11,818	455	3.9	98.7

CASE-FINDING VALUES OF PROJECT

It is well known that tuberculous lesions begin to develop within an hour after tubercle bacilli invade the body.[9] The term infection applies only to the invasion. The minute lesions may progress continuously but much more often intermittently to gross proportions. They may also liberate bacilli that result in new lesions (endogenous reinfections). From the microscopic initial lesions, therefore, either directly or indirectly lesions may evolve to cause illness and even death. Thus infection, lesions, illness, and death represent different phases in the evolutionary process of tuberculosis. Therefore, the individual with microscopic lesions has tuberculosis as certainly as the one dying from the disease. The latter at one time was in the same stage as the former. Moreover, he then had a case of tuberculosis as truly as when he was dying from the disease. Obviously all persons with microscopic lesions have cases and should be so recognized in case-finding programs, whether on a mass basis or in the physician's office.

Within a few weeks after tubercle bacilli invade the individual's body, the tissues, including the skin, are so sensitized to tuberculoprotein as to react characteristically to tuberculin. This reaction is specific and indicates the presence of lesions even while they are microscopic. It is the minuteness, consistency, and location of most lesions of primary tuberculosis complexes that preclude their visualization during life. It was these factors that led to the erroneous concept that infection exists without lesions. The pathological studies of Ghon in the second decade of this century showed that at least primary tuberculous lesions were present in all bodies examined of persons who during life had no detectable evidence of tuberculosis except the tuberculin reaction. This has been confirmed by veterinarians who in this country have made postmortem examinations on approximately 4 million tuberculin-reacting cattle. The 455 children who reacted to tuberculin in this study must be classified as having tuberculosis in the sense that they possess lesions that at any time in the remainder of their lives may evolve to gross and symptom-producing proportions. The superiority of the tuberculin test over all other diagnostic procedures is demonstrated. Of the 455 reactors who had x-ray film inspection of their chests, only 21 (4.8%) showed any abnormality. The findings in these 21 consisted mainly of calcific deposits with undetermined etiology. Biopsy would be necessary for accurate diagnosis.

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[9] Vorwald, A. J.: The Early Cellular Reactions in the Lungs of Rabbits Injected Intravenously with Human Tubercle Bacilli, Am. Rev. Tuberc. 25:74, 1932.

The importance of periodic examinations of tuberculin reactors who have no other evidence of tuberculosis is obvious. Sweany [10] has shown that nature often reabsorbs the osseous and calcified walls encasing tubercle bacilli in primary lesions and thus liberates tubercle bacilli. From everywhere comes the lament that such a high percentage of cases of clinical tuberculosis are in an advanced stage when recognized. Moreover, mortality among these persons is high. Alling and co-workers [11] reviewed all cases of advanced tuberculosis reported in eight upstate New York counties from 1938 through 1948. In the 224 considered, one-fourth of the persons died in the first six months after diagnosis and almost two-fifths during the first year. The solution of this problem has been thoroughly demonstrated over the past quarter century.[12] All advanced cases could have been found when the tuberculin reaction was the only demonstrable evidence of tuberculosis. From that time on periodic examinations at least annually will permit diagnosis of 95% of evolving chronic pulmonary lesions while they are minimal, before they produce symptoms and usually before they are contagious. Obviously the best time to start routine tuberculin testing is in childhood. Those who do not react should be tested periodically throughout childhood and adult life. Those who become reactors should be examined periodically throughout life, since tuberculosis is a lifetime disease.

SOURCE CASES

Inasmuch as tuberculosis is a contagious disease ar infections are acquired after birth, the tuberculin react has had contact, usually direct, with at least one pers who had contagious tuberculosis. Therefore, the tube culin reaction is an excellent epidemiological age When an adequate search is made among the ad associates of the child who reacts, the contagious case found with such frequency as to justify all efforts a expense. For example, Wood and Mantz [13] tested w tuberculin kindergarten and first grade children Kansas City. On examining the adult associates of reactors, they found 10 times more clinical cases tuberculosis than had ever been discovered in that a by mass x-ray survey. The St. Louis Academy of G eral Practice reported tuberculin testing of 15,7 school children and finding among the reactors and th adult associates 13 times more active cases of tuber losis than the national average with mobile x-ray unit

Where good epidemiological work is practiced, th must come a time when attempts to trace to the sou of infection among tuberculin reactors, particularly older school children, will reveal that most of the sponsible cases have already been found and prop managed. For example, in one entire county where 8 of the persons of all ages beyond 6 years responded tuberculin-testing survey, no case of clinical tubercul was found among the reactors.[15] In that county, p ticing physicians, the medical director of the sanatori and their allies have combed the population for clin tuberculosis for more than a quarter of a century. lesions evolved, they were usually found before they disseminated tubercle bacilli to many of their associa However, the children whom they infected still reac tuberculin. In this particular county, 22% of the t population is harboring tubercle bacilli as manifeste the tuberculin reaction. The percentage is exceedi small among the children and young adults, but as l as 40 to 60% among persons in the later decade life. If the reactors of all ages in this county are ex ined periodically, those in whom clinical lesions destined to evolve will be detected largely before t cases have become contagious. Thus, few new in tions will occur. If the clinical lesions that ev among the tuberculin reactors are found sufficie early, present methods of treatment are capable of venting them from becoming contagious and thus tubercle bacilli can be kept corralled for the remain of those individuals' lives. The present situation in county may be contrasted with another in which cour wide tuberculin testing was offered to all age group 1941. Among the 2,031 reactors examined, 16 alre had clinical tuberculosis.[16]

Following our 1926 and 1936 testing in paroc schools, no effort was made to find sources of the c dren's infections, although intensive work of this k was being done in some of our other studies. Famil of the reactors were contacted with reference to kno sources of exposure, and some effort was made am the contacts of those who did not know when or wh infections occurred. However, soon after the 1954 te ing an investigation revealed that there were 1,744 contacts in the homes of the 455 children who reacted. Plans are under way to examine all of these associates, but to date this has been accomplished in only 1,018 (58.4%). An additional 321 (18.4%) of the contacts were children found to be nonreactors to tuberculin. Examination of the remainder will require considerable time. Of the 1,018 already examined, 945 had no abnormal findings, 9 had suspicious lesions, and 20 had other (thought to be nontuberculous) findings. Fifty-one had been given a diagnosis of tuberculosis, and 13 were earlier suspected of having tuberculosis. Only one new definitely diagnosed case was found, which speaks well for the long-continued search for clinical cases of tuberculosis in these communities. This is in sharp contrast with our earlier work in other groups when numerous unsuspected cases of contagious tuberculosis were found among adult associates of tuberculin-reacting children.[12] Among the 199 personnel members who reacted to tuberculin, 192 have already been examined, of whom 167 presented no chest abnormality. Of the remaining 25, only 3 had parenchymal lesions, each of whom was previously diagnosed and adequately observed or treated. Others had such conditions as rib anomalies and calcified lymph nodes. Two had changes in cardiac outline. This is most satisfying, as it indicates that care has been exercised to keep contagious personnel members from working in schools.

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[10] Sweany, H. C.: Age Morphology of Primary Tubercles, Springfield, Ill., Charles C Thomas, Publisher, 1941.

[11] Alling, D. W.; Lincoln, N. S., and Bosworth, E. B.: The After-History of Pulmonary Tuberculosis: Far Advanced Tuberculosis, Am. Rev. Tuberc. 70: 995, 1954.

[12] Harrington, F. E.: Evolution of Tuberculosis as Observed During Twenty Years at Lymanhurst, report to the Board of Public Welfare, Minneapolis, Board of Public Welfare, 1944.

[13] Wood, L. E., and Mantz, H. L.: Tuberculin-Histoplasmin Conversion Rates in Kansas City as an Indication of the Prevalence of Infection—Preliminary Report: Tuberculin Studies, Am. Rev. Tuberc. 69: 227, 1954.

[14] Gray, W. C.: Mass Tuberculin Patch Testing of School Children, J. A. M. A. 158: 8 (May 7) 1955.

[15] Jordan, K. B., and Jordan, L. S.: County Wide Tuberculin Testing, Dis. Chest 26: 528, 1954.

[16] Danielson, K. A.: The Meeker County Tuberculosis Control Project, Minnesota Med. 30: 635, 1947.

The prediction of Krause in 1926 that tuberculin testing in schools about every 10 years would yield much valuable information has proved true in this study. On another occasion he said that the value of the test will increase as the incidence of tuberculosis decreases. His vision has been so realized that the tuberculin test has become the master key to the tuberculosis problem. It detects the presence of tuberculosis earlier than any other phase of an examination. It is the only accurate yardstick for promptly measuring the effectiveness of a tuberculosis control program. It is our only good method of determining the present and future tuberculosis control program. It can be used to advantage in determining responsibility in cases that come to litigation. It is our best epidemiological agent. It now promises to tell the physician the only time to start treatment if complete cure is to be accomplished. The conventional therapeutic procedures of the past have had no effect on the immediate course of primary tuberculosis either in children or adults nor have they prevented such individuals from subsequently developing clinical lesions. Antimicrobial drugs may completely change this situation. It has recently been recommended by Waring [17] and others that these drugs be administered as soon as possible after the individual converts to a tuberculin reactor. At that time the lesions are small and vascular and may remain so for some months. This is the only time when antimicrobial drugs might be expected to destroy all tubercle bacilli. If the time passes when the blood supply to tuberculous lesions is eliminated there is little likelihood that any drug can reach all bacilli in necrotic lesions. If our present or subsequent antimicrobial drugs prove effective in the numerous investigations now being conducted, it will be the first time in history that physicians have been able to cure tuberculosis. The tuberculin test is the only known procedure by which the disease can be detected at this early stage. Thus, the medical profession will have no alternative but to administer this test periodically to all nonreactors.

The tuberculin test may also serve to determine when adequate treatment has been administered. There is reason to believe that when all tubercle bacilli are destroyed so there is no longer tuberculoprotein maintaining sensitivity of tissues, the individual will cease to react to tuberculin. Only prolonged careful studies, both experimental and clinical, will provide the necessary information. A widespread movement is under way for tuberculin testing school children everywhere. This affords the medical profession its finest opportunity of all time to scientifically and effectively attack this disease with the hope of ultimately tracking down and destroying the last tubercle bacillus.

SUMMARY AND CONCLUSIONS

Tuberculin testing of grade school children about once in 10 years since 1926 served as an accurate measure of effectiveness of the general tuberculosis control program and provided much other valuable information about this disease. Response on the part of the children improved from decade to decade and reached 98.7% in 1954. This excellent response was in part due to schools attempting to qualify for certification by the American School Health Association. Of the 24 schools participating, 23 were certified. In 1926, of the children tested, 47.3% reacted to tuberculin; in 1936, 18.9; in 1944, 7.7; and in 1954, 3.9. During each of these intervals the general tuberculosis control program in the area was intensified. To prevent dissemination of tubercle bacilli, case-finding techniques were improved. Sanatorium facilities became adequate, and tuberculosis was practically eradicated from the cattle herds. In 1954, of the 432 personnel members of these schools 425 (98.4%) responded, of whom 199 (46.8%) reacted to tuberculin. Since the tuberculin reaction indicates the presence of at least microscopic lesions, 455 children and 199 personnel members were found with such lesions. In the strict sense of the word they had cases of tuberculosis.

Tuberculous infection, lesion, illness, and death are one and the same in different stages of the evolution of tuberculosis. The ill and the dying once had only microscopic lesions. All could have been found by the tuberculin test while the lesions were microscopic. Periodic examination of persons who have no evidence of tuberculosis except the tuberculin reaction is the solution of the problem of the high percentage of cases of advanced disease found on first examination. In most cases chronic pulmonary tuberculosis evolves slowly and can be diagnosed while still in the minimal stage before it has caused symptoms and usually before it is contagious. The best place to start is in childhood. All are born free from tubercle bacilli. Periodic testing with tuberculin will detect infections soon after they occur with uncanny accuracy. Periodic examination of those who become reactors will detect the clinical lesions that evolve when they are most treatable.

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[17] Waring, J. J.: The Current Treatment of Pulmonary Tuberculosis, Dis. Chest 25:361, 1954.

Tuberculin testing of children and seeking the sources of infections of the reactors are excellent epidemiological procedures. Demonstrations are on record in which many times more clinical cases have been found by this method than by mass x-ray surveys. The value of this procedure decreases where communities are periodically combed and clinical cases are removed or adequately treated. This has been demonstrated in the areas where this particular study has been conducted. In the 1920's and early 1930's tracing to the source of an infected child was a frequent occurrence. By 1954 unknown or unsuspected contagious cases had become relatively rare. Apparently most of the sources of infected children had previously been managed. However, the infections in the children remain and must be dealt with accordingly. In this area the tuberculin test has become the master key to the tuberculosis problem. It detects tuberculosis earlier in the human body than any other procedure. It accurately measures the effectiveness of a tuberculosis program. It determines the magnitude of the tuberculosis problem in a given area. It is an excellent epidemiological agent. It promises to tell the physician when to start treatment that may destroy all tubercle bacilli, and it may be our only index for discontinuance of treatment.

1316 Mayo Memorial Bldg. (14) (Dr. Myers).

Cortisone, ACTH and Infection.—Several representative species of virus are among the infectious agents whose capacity to infect is greatly enhanced by cortisone; there is reason to believe that the human organism is host to a great variety of viruses whose identities have not yet been determined and whose long-range injurious effects have not been gauged. It has been shown that malignant human neoplasms, which cannot be transplanted into normal animals, become able to grow without restraint in cortisone-treated animals. Neoplasms which are ordinarily not transmissible in certain species become easily transmissible with the aid of cortisone, and the induction of widespread metastasis with tumors which normally remain localized has been observed. It has even been reported that the growth of tumors induced by carcinogens is augmented by cortisone. It has been shown, furthermore . . . that certain bacterial toxins produce, in cortisone-treated animals, necrotizing lesions of the blood vessels and kidneys which do not occur in normal animals. Experimental streptococcal infections which have remained dormant and hidden for long periods of time have been reactivated to produce lethal septicemia, and similar results have been observed with other types of infection. Mental disturbances, which closely simulate the most malignant forms of mental disease, have occurred as a complication of therapy, and these are especially alarming when they happen, as they have, in young children. It is difficult to be sanguine about drugs with such side-effects as these, and it is not enough to say that some of the reactions are transitory or reversible, or that they do not occur very often. . . . The clinical use of these hormones should not be extended beyond the areas in which it can be predicted that they may save or prolong life, or relieve intractable suffering. This is especially to be emphasized, I believe, for the infectious diseases, in which something of a vogue for the use of cortisone and ACTH as "adjuncts" of therapy is discernible on the horizon.—L. Thomas, M.D., Cortisone, ACTH and Infection, *Bulletin of the New York Academy of Medicine,* July, 1955.

CLINICAL NOTES

POLYCYTHEMIA WITH FIBROIDS

Herbert W. Engel, M.D.
and
Karl Singer, M.D., Chicago

In 1953, Thomson and Marson[1] described a case with fibromyomas of the uterus associated with polycythemia in which, after hysterectomy and bilateral salpingo-oophorectomy, the polycythemia rapidly disappeared. Initially, this patient had a red blood cell count of 7,600,000 per cubic millimeter, a hemoglobin level of 140 gm. per 100 cc., and a total blood volume of 7,286 cc. (Evans blue technique). After surgery, a normal hemoglobin level and red blood cell count became established and were maintained for the next 22 months. A similar observation is reported here to draw attention to this peculiar syndrome.

REPORT OF CASE

A 39-year-old married Negro housewife was first seen in the outpatient clinic on Feb. 20, 1953 with the chief complaint of severe headaches of many years' duration and blurring of vision. At that time, it was discovered that the patient's uterus was irregularly enlarged to the size of a 10 week pregnancy. Her hemoglobin level was 21.4 gm. per 100 cc., with a red blood cell count of 6,800,000 per cubic millimeter and hematocrit (Wintrobe) of 61%. The white blood cell and platelet counts were within normal limits. On Dec. 4, 1953, the patient was admitted to Michael Reese Hospital with complaints of increasing pelvic pressure. Her history included hemorrhoidectomy in 1936 and ectopic pregnancy in 1942. Her menstrual history revealed no abnormalities. Profuse sweating and bluish palms and soles had been noted for many years and more recently also paresthesias of the fingers. No itching after bathing had been observed.[2]

On physical examination, the retinal vessels were normal. Lips and oral mucous membranes appeared cyanotic. No lymphadenopathy was present. The cardiovascular system was without abnormality. The tip of the spleen was palpated 2 cm. below the costal margin. The liver was not enlarged. A mass was felt in the lower abdomen arising out of the pelvis and extending toward the umbilicus. On vaginal examination, this mass was identified as the uterus, was movable, and deviated to the right. It contained multiple, subserous nodules. The adnexa appeared to be normal.

Laboratory Data.—Results of the routine hematological data are found in the table. The hemoglobin level was 19.8 gm. per 100 cc., the red blood cell count was 6 million per cubic millimeter, hematocrit 59%, color index 1.0, mean corpuscular volume 98 cubic microns, sedimentation rate 0, platelets 700,000 per cubic millimeter (normal 300,000 to 700,000), white blood cell count 6,700 per cubic millimeter, sickling test negative. Reticulocytes were 1.1%, prothrombin time (one-stage) 12 seconds, clotting time (Lee-White) 9 minutes. Blood volume (Evans blue technique with correction factor 0.86[3]) was 5,000 cc. (96 cc. per kilogram), plasma volume 2,300 cc. (44 cc. per kilogram), and red blood cell mass 2,700 cc. (52 cc. per kilo-

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From the Department of Hematologic Research, Medical Research Institute, and the Department of Obstetrics and Gynecology, Michael Reese Hospital. The Department of Hematologic Research is supported in part by the Michael Reese Research Foundation.

[1] Thomson, A. P., and Marson, F. G. W.: Polycythaemia with Fibroids, Lancet 2: 759 (Oct. 10) 1953.

[2] Dameshek, W.: Some Observations in Polycythemia Vera, Bull. New England M. Center *16: 53 (June) 1954.*

[3] Mollison, P. L.: Blood Transfusion in Clinical Medicine: With Foreword by Alan N. Drury, Springfield, Ill., Charles C Thomas, Publisher, 1951.

gram). Examination of the sternal marrow revealed only a mild erythrocytic hyperplasia. Urinalysis was normal. All blood chemistry determinations, including fasting blood sugar level, serum urea nitrogen, uric acid, and liver function tests, were within normal limits. Electrocardiographic, gastrointestinal, and chest x-ray studies were negative. Laparotomy was performed on Dec. 9, 1953, by Dr. M. K. Levin. Multiple, large, uterine fibroids were found, and a total hysterectomy and bilateral salpingo-oophorectomy were performed. Bleeding at surgery was minimal, and hemostasis was effective. The patient's postoperative course was uneventful. Following discharge from the hospital on Dec. 29, the patient's hemoglobin level varied between 12.1 and 13.4 gm. per 100 cc. with hematocrit varying between 40 and 42%. A blood volume determination a month after surgery revealed a total blood volume of 3,427 cc. (66 cc. per kilogram), plasma volume of 2,125 cc. (41 cc. per kilogram), and a red blood cell mass of 1,298 cc. (25 cc. per kilogram). Six months postoperatively, the patient's hemoglobin level was 12.9 gm. per 100 cc., red blood cell count 4,300,000 per cubic millimeter, hematocrit 39%, white blood cell count 7,700 per cubic millimeter with a normal differential count, and platelets 361,000 per cubic millimeter. A blood volume study performed at this time showed a total blood volume of 3,340 cc. (75 cc. per kilogram), plasma volume of 2,575 cc. (50 cc. per kilogram), and red blood cell mass of 1,365 cc. (25 cc. per kilogram). When the patient was last seen (i. e., six months postoperatively), she felt well and was completely asymptomatic. Her headaches and the profuse sweating had disappeared, and the polycythemia had not recurred.

Routine Hematological Data in Patient with Polycythemia

Date	Hemoglobin Level, Gm./100 Cc.	Red Blood Cell Count, Million/Cu. Mm.	Hematocrit	Mean Corpuscular Volume, Cu. μ	Color Index	White Blood Cell Count/Cu. Mm.	Reticulocytes, %/Cu. Mm.	Platelets/Cu. Mm.	Blood Volume Cc./Kg. Plasma Volume	Blood Volume Cc./Kg. Red Blood Cell Mass	Blood Volume Cc./Kg. Total
2/20/53	21.4	6.8	61	90	1.0	7,000	...	800,000	..	..	..
12/ 5/53	19.8	6.0	59	98	1.0	6,700	1.1	700,000	44	52	96
12/ 9/53						Laparotomy					
12/10/53	16.6	5.6	53	94	0.95	12,000	1.0	670,000	..	..	..
12/14/53	15.8	5.0	48	96	1.0	6,400	0.2	450,000	..	..	..
12/29/53	13.4	4.2	42	100	1.0	.....	...	....	..	..	..
1/19/54	13.1	4.2	40	95	1.0	10,400	...	....	41	25	66
2/16/54	13.1	4.1	40	97	1.0	5,600	...	....	..	..	..
4/22/54	12.1	4.1	..	..	0.93	8,900	..	....	..	..	..
5/25/54	13.8	...	40	..	...	.....	...	....	..	..	..
6/18/54	12.9	4.3	39	91	0.95	7,700	0.9	361,000	50	25	75

SUMMARY

This case is the second instance of the simultaneous occurrence of polycythemia and uterine fibroids. The hematological abnormalities (high hemoglobin level and red blood cell count and increased red blood cell mass) were completely alleviated by total hysterectomy and bilateral salpingo-oophorectomy. No explanation can be offered for these phenomena that are, however, deemed of sufficient interest to alert the profession into considering such an interrelationship.

29th Street and Ellis Avenue (16) (Dr. Singer).

Arterenol and Migraine.—Arterenol, an agent with almost pure vasoconstrictor and minimal metabolic effects, has been shown to terminate migraine headache promptly, and to reverse evidence of increased tissue vulnerability more rapidly than occurs spontaneously. Observations herein noted suggest that the constricting effect on relatively larger vessels and on arterioles and metarterioles terminates headache and raises deep-pain thresholds. The latter process is presumably effected by drawing a pain-threshold-lowering substance out of tissue and back into the blood.—A. M. Ostfeld, M.D., and H. G. Wolff, M.D., Arterenol (Norepinephrine) and Vascular Headache of the Migraine Type, *A. M. A. Archives of Neurology and Psychiatry,* August, 1955.

FEASIBILITY OF SKIN TESTING FOR PENICILLIN SENSITIVITY

A STUDY OF ONE THOUSAND CASES

Lieut. Col. Arthur J. Berger
and
Capt. Bruno Eisen, (MC), U. S. Army

Many authors have stated that skin tests would determine whether penicillin can cause either anaphylactic or delayed reactions. Before the introduction of antibiotics, including the sulfonamides, many individuals did show sensitivity to different drugs, such as quinine, coal tars, aspirin, and iodides. According to Landsteiner, these drugs were considered haptens and caused a reaction by combination with the plasma proteins. During these times many different methods of testing were tried to determine these sensitivities and were found useless except for the method of trial and error. Since the advent of antibiotics and the increase in sensitivity reactions, this has become a more serious problem. Luckily, most of these reactions were of the delayed type that, although annoying and troublesome, had almost no mortality. Recently, however, up to 40 cases of true anaphylactic shock from the use of penicillin have been reported by different authors, with a high mortality rate.

Until recently, we expected true anaphylactic shock in animals. In the guinea pig the reaction occurs in the bronchial musculature, producing a tetanic contraction that finally causes death by asphyxia. The shock organ in the rabbit is the musculature of the pulmonary artery, and death occurs by complete mechanical interruption of the blood circulation in the arterioles of the lungs. In the dog, the liver is the important shock organ, and death occurs by the collection of blood in the liver, causing hepatic obstruction of circulation. The single prominent feature in all species of animals is the effect on nonstriated muscle. In man, however, the shock organ may vary, not only in different individuals but even in the same individual in response to a single antigen, e. g., the nose, bronchial mucosa, and skin. Symptoms are more often due to edema and rarely, if ever, to contracture of smooth muscle.

From the Department of Medicine, Brooke Army Hospital, Fort Sam Houston, Texas.

In the recent series of deaths and severe anaphylactic shock within minutes of the injection, the patient would become clammy, pulseless, with a marked lowering of blood pressure, and unconscious. Unless stringent measures were instituted, death would ensue. This is in marked contrast to the delayed type reaction, which occurs up to three or four weeks following the injection and consists of many different types. The commonest type is massive generalized urticaria, which at times becomes exfoliative and bullous and even purpuric. Other symptoms are extreme itching, with massive edema usually of the extremities, angioneurotic edema of the face, nausea, malaise, anorexia, laryngeal edema, and possibly spasm. This type of reaction responds well to therapy.

This study was started to show whether testing by any method could determine and prevent these occurrences. The study was carried out in a large Army general hospital. Because the predominant type of penicillin used was procaine penicillin, tests were performed with this agent. The study was carried out by the allergy and immunology section and three groups of patients were used from both the inpatients and the outpatients of the hospital.

TYPES OF PATIENTS

Allergic Individuals.—The group of allergic persons included patients in the average run of all cases referred to the allergy section, so that it can be surmised that most of these patients had an allergic diatheses. Also included were all patients undergoing desensitization therapy at the clinic.

Nonallergic Individuals.—The second group included patients from different wards whether they were receiving penicillin or not. Patients were included from general surgery, orthopedics, general medicine, gynecology and obstetrics, as well as other services, so that the majority could be considered not allergic.

Penicillin-Sensitive Individuals.—The group of penicillin-sensitive persons included some patients in an actual exacerbation of a delayed penicillin reaction. The group included patients with both remote and recent reactions.

METHOD AND MATERIALS

Scratch Test.—Scratch and control tests, with the use of procaine penicillin in dilution, were done and observed in 20 minutes. With appearance of any redness or a wheal, the test result was considered positive and further intradermal testing was not done.

Intradermal Test.—In the second type of test 0.02 cc. of the dilution was injected intradermally, and the result was read in 20 minutes and again in 48 hours. This also was controlled and read as negative or equivocal, 1+, 2+, 3+, or 4+.

Patch Test.—In the patch test a small amount was placed on the dry clean skin and covered with a patch and the reaction was read in 48 hours. This type of test was also controlled and read in the same manner as in the intradermal testing. Passive transfer tests were not done because it would not be feasible in the infinite number of penicillin injections given throughout the country to perform this test.

Dilution Used and Results.—The testing was first started with procaine penicillin in dilution of 5,000 units per cubic centimeter. Because of the minute number of reactions, dilutions were increased to 17,500 units per cubic centimeter and later to 37,500 units per cubic centimeter. The majority of the patients were tested with the stronger dilution in scratch, intradermal, and patch testings. In 1,000 patients given penicillin, there were 24 positive reactions and 976 completely negative reactions. In the 24 positive reactions there was absolutely no relationship to the three groups tested. In fact, most of them occurred in the second group of patients without an allergic diathesis. Of the 24 positive reactions, 5 were suggestive, 15 were 1+, 3 were 2+, and one included anaphylactic shock. The following cases demonstrate some unusual results.

REPORT OF CASES

Case 1.—A 24-year-old Air Force nurse being treated in th hospital for pulmonary tuberculosis had a history of a penicillin reaction several years before. Results of patch and scratc tests were negative; however, on the intradermal test with 1,00 units per cubic centimeter of procaine penicillin, the patie went into complete anaphylactic shock within two minutes. Sh became cyanosed, pulseless, clammy, and nauseated and had complete vascular collapse. Levarterenol (Levophed) in 1,00 cc. of saline solution intravenously helped bring the patie out of collapse in one and one-half hours. There was erythematous eruption of any kind. To make sure we were n dealing with hysteria in this case, three days later we ask the patient if we could do another test with a weaker dilutio of penicillin to determine her threshold of tolerance. She agre to another test but instead was given an intradermal injectio of distilled water; no reaction whatever occurred. She was al tested for procaine sensitivity with negative results.

Case 2.—A 73-year-old retired officer who came for evalu tion from the dental clinic before extraction of a tooth wi associated abscess was given penicillin, 600,000 units, and minutes later suddenly fainted and was found lying on t floor. He was noted to be rather pale and perspiring profusel The peripheral pulse was almost impossible to ascertain b cause of rapid rate and distant heart sounds. The blood pre sure was unobtainable. The patient was given 0.2 cc. of 1:2,6 epinephrine intramuscularly and 5% dextrose in saline sol tion. When he became rational, he complained of generaliz itching. An erythematous flush was noted over the upper anteri trunk. On further questioning, as soon as it was feasible, was found that the patient had had sensitivity reaction to pe cillin in the past. When tested by us at a later date, complete negative results were obtained for scratch, patch, and int dermal tests.

Case 3.—A young physician was given penicillin in the eme gency room because of an oral infection. He had a mild an phylactic shock and experienced dizziness, nausea, and feelin of faintness within two minutes of the injection. Epinephri was given and this reaction was cleared. Results of testing all three methods were completely negative.

Case 4.—A 62-year-old man was being treated at the ho pital for bronchopneumonia. He received procaine penicilli 300,000 units three times daily, for four days. Two weeks lat he developed massive generalized urticaria, edema of ank joints and wrists, severe itching, and nausea. Patient respond to the usual therapy, including administration of corticotrop (ACTH) intravenously. Five weeks later completely negati results of scratch, patch, and intradermal tests were obtained.

Case 5.—A 33-year-old male received four daily injectio of procaine penicillin, 300,000 units each, prophylactically f a minor surgical procedure. On the day of the last injectio he developed generalized urticaria with severe itching. This wa cleared quickly by use of antihistaminics and by stopping a ministration of antibiotics. One week later, results of scratc patch, and intradermal tests were completely negative.

Case 6.—A 30-year-old female came to the dental clinic fo extraction of an infected tooth root. One year previously, sh had had a delayed type of reaction to penicillin. She had rhe matic heart disease. She was given 500,000 units of penicillin G by mouth three times daily for two days and developed generalized pruritus, nausea, malaise, and some dysphagia but no actual skin rash. All symptoms cleared after administration of antibiotics was stopped. Ten days later results of scratch, patch, and intradermal tests were completely negative.

Case 7.—An Air Force nurse, 24 years of age, being treated for pulmonary tuberculosis, had received numerous courses of penicillin therapy previously without complications. She was then receiving streptomycin and isoniazid (Ditubin) daily. The patient showed a reaction to penicillin in 48 hours by intradermal testing. Results of scratch and patch tests were negative.

COMMENT

In the 1,000 cases studied, we feel we have proved that testing is not a reliable way to determine penicillin sensitivity. The fact that many authors give this impression tends to give the practitioner an erroneous confidence in these tests. We are of the opinion that other means must be taken to try to protect the patient. With almost all the population today having been exposed to penicillin in some form or other, we can surmise that anyone is subject to reaction, either immediate or delayed. The indiscriminate use of antibiotic troches, eye drops, ear drops, inhalants, or unguents or the giving of antibiotics for minor complaints tend to sensitize the patient and produce a fertile field for a reaction. In using a combination of penicillin and procaine, we feel we are doubling our chances of reactions, as it is well known that the "caine" products can also produce reactions. It has been noted that all the anaphylactic reactions have occurred in adults. There was one report in the literature of a death in a child from anaphylactic shock but the discussion was very indefinite. Even delayed reactions in children are very rare. Allergists know that children can take much larger doses than adults of pollen in desensitization without getting reactions either locally or constitutionally.

It has been suggested that patients showing delayed reactions be densensitized to penicillin. Sterling[1] did this in small doses in four cases. If this were done, it would take months to build up a high enough tolerance to take an average dose and even then, our use of the desensitizing doses could cause a reaction. We do not believe this is feasible. The use of antihistamines with the penicillin may tend to diminish or abort the delayed manifestations, but we do not feel it would be of any use in preventing the anaphylactic reaction. Wofford[2] believes that an anaphylactic reaction can be caused by penicillin inadvertently being given intravenously. In studying the case reports, no support for this view was noted. Reactions can occur by absorption from the reticular tissue or even from the unbroken skin.

SUMMARY AND CONCLUSIONS

This study demonstrates that skin tests cannot be depended on to determine penicillin sensitivity. To safeguard patients, the following points are of value. Antibiotics should be used only when indicated. If there is a history of previous exacerbation to penicillin, some other antibiotic should be used, if applicable. A preparation for oral use should be used whenever feasible. Care should always be taken if patient has an allergic diathesis. When penicillin is given intramuscularly, it should be given on the lateral aspect of the arm, low enough so that a tourniquet can be applied if necessary, but not so low as to risk radial nerve injury. Patients should always be watched for at least 20 minutes following an injection. If an immediate reaction occurs, a tourniquet should be applied between the site of injection and the heart. Small doses of epinephrine (1:1,000), 0.03 cc. to 0.05 cc., should be given at the site of injection. The patient must have an open air way and sufficient oxygen. Arterenol (Nor-Adrenaline), a pressor substance, 4 mg. in 1,000 cc. of saline solution, should be given intravenously very slowly; this is of distinct value. Dihydrocortisone given intravenously may be lifesaving.

1. Sterling, A.: Anaphylactic Shock Following Penicillin Therapy in Bronchial Asthma, J. Allergy **24**: 542 (Nov.) 1953.

2. Wofford, C. P.: Anaphylaxis to Penicillin: Report of an Unusual Case, Ann. Allergy **11**: 470 (July-Aug.) 1953.

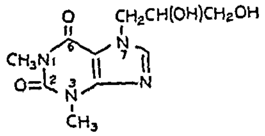
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

R. T. Stormont, M.D., *Secretary.*

Hyphylline.—$C_{10}H_{14}N_4O_4$.—*M.W.* 254.25.—7-(2,3-Dihydroxypropyl)theophylline.—The structural formula of hyphylline may be represented as follows:



Actions and Uses.—Hyphylline, a neutral derivative of theophylline, is stable in gastric juice. Although hyphylline can be administered orally in more effective doses than most theophylline compounds (such as aminophylline), it has not been shown to be superior in this respect to theophylline-sodium glycinate. It exhibits the characteristic peripheral vasodilator and bronchodilator actions of other theophylline compounds, and, in contrast to those that are poorly tolerated by the stomach, it can be expected to be effective orally in the treatment of bronchial asthma, paroxysmal cardiac dyspnea, and Cheyne-Stokes respiration. Hyphylline also produces the typical diuretic and myocardial stimulant effects of theophylline compounds, which are useful in the management of edema secondary to congestive heart failure. Its use in coronary disease or angina pectoris is not recommended until it can be demonstrated that increased coronary blood flow precedes rather than follows myocardial stimulation.

The toxicity of hyphylline in mice is considerably less than that of aminophylline; this difference has not been demonstrated in man, except that it tends to produce less nausea, clinically, when given orally, because it produces less gastric irritation than other theophylline compounds. Large doses of hyphylline, like those of other xanthines, may be associated with unpleasant symptoms of central nervous system stimulation.

Dosage.—Hyphylline is administered orally; for adults, an average dosage is 0.2 gm. three times daily. Smaller oral doses may be adequate to produce a diuretic effect and stimulation of cardiac muscle in congestive heart failure. Larger doses may be required for the control of bronchial asthma, paroxysmal cardiac dyspnea, and Cheyne-Stokes respiration. The dosage should be individualized in accordance with the desired effect and the patient's tolerance to the drug. When oral therapy fails, injection of more soluble theophylline compounds such as aminophylline may be indicated.

Paul Maney Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of hyphylline.

Lututrin.—Lututrin is a uterine relaxing factor obtained from the corpus luteum of sow ovaries by a process of salting out followed by dialysis. It is a water-soluble protein or polypeptide. It is assayed biologically.

Actions and Uses.—Lututrin produces a potent relaxant effect on the guinea pig uterus. Its constitution is somewhat similar to relaxin (Hisaw), a term used to designate a luteal hormone that produces relaxation of the symphysis pubis in the guinea pig; however, lututrin, as assayed primarily for uterine relaxant effect, exhibits little uniformity in relaxin activity. The uterine relaxing factor is not destroyed in the stomach, since the active principle appears in the blood serum within 30 minutes after oral administration.

Lututrin is useful in the treatment of functional dysmenorrhea. In a considerable proportion of patients it relieves to varying degrees the entire symptom complex of that disorder, but is not effective in those women with major psychosomatic difficulties or pelvic anatomic abnormalities. Its effectiveness is enhanced by early administration, ideally the day prior to the onset of menstruation, but certainly before menstrual cramping becomes severe or nausea occurs. Evidence is inadequate to justify its earlier use for the relief of premenstrual tension or for the treatment of threatened or habitual abortion and other conditions involving hypercontractility of the uterus.

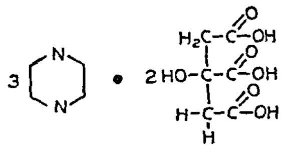
Lututrin produces no sedative action, but large doses have been followed by some drowsiness. No other side-effects have been observed with moderate doses.

Dosage.—Lututrin is administered orally. Dosage is expressed in terms of units of activity on the guinea pig uterus. A unit is defined as "the minimal amount of substance which, when injected intravenously into the estrogenized virgin guinea pig, effects a 90% reduction in the height of spontaneous contractions for a period of at least 10 minutes."

For dysmenorrhea the usual effective dosage ranges from 2,000 to 4,000 units initially, preferably before onset of severe symptoms, followed by 2,000 to 3,000 units every 3 or 4 hours as required. Individual response varies, and doses as high as 10,000 units have been employed without untoward effects.

Hynson, Westcott & Dunning, Inc., cooperated by furnishing scientific data to aid in the evaluation of lututrin.

Piperazine Citrate. — $3C_4H_{10}N_2.2C_6H_6O_7$. — M.W 642.68.—The structural formula of piperazine citrat may be represented as follows:

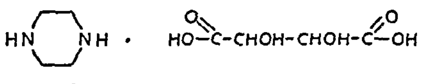


Actions and Uses.—Piperazine citrate is useful as an anthelmintic for the treatment of infections caused by pinworms (Enterobius vermicularis, Oxyuris vermicularis) and roundworms (Ascaris lumbricoides). The drug is relatively nontoxic to humans and usually produces no side-effects when administered in anthelmintic doses. The ingestion of excessively large amounts may produce urticaria or vomiting, blurred vision, and general muscular weakness, which disappear when the drug is discontinued. Excessively prolonged or repeated treatment should be avoided.

Dosage.—Piperazine citrate is administered orally. The dosage is expressed in terms of the hydrous base, piperazine hexahydrate. For children and adults the daily dose may be calculated on the basis of 50 mg. per kilogram (22.7 mg. per pound) of body weight, but this should be limited to not more than 2 gm. daily per patient. The calculated total daily dosage usually is divided into two equal doses administered morning and night. For pinworms, treatment is administered either as a single course for 14 days, or for 7 days followed by a rest period of one week, and a second course for 7 days. For ascariasis, a single course of 5 to 7 days usually is adequate. Appropriate precautions should be taken to prevent reinfection, especially in the treatment of pinworms.

The Blue Line Chemical Company and Burroughs Wellcome & Company, Inc., cooperated by furnishing scientific data to aid in the evaluation of piperazine citrate.

Piperazine Tartrate. — $C_4H_{10}N_2.C_4H_6O_6$. — M.W. 236.23.—The structural formula of piperazine tartrate may be represented as follows:



Actions and Uses.—Piperazine tartrate is used for the same purposes as other salts of the base. See the monograph on piperazine citrate.

Dosage.—Piperazine tartrate is administered orally and, like other salts of the base, the dosage is expressed in terms of the base, piperazine hexahydrate.

Lincoln Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of piperazine tartrate.

Poliomyelitis Immune Globulin (Human).—*Poliomyelitis immune globulin (human* is a sterile solution of globulins that contains those antibodies normally present in adult human blood. Each lot is derived from an original plasma or serum pool that represents at least 1,000 individuals and is processed to contain 165 mg. (± 15 mg.) of globulin per cubic centimeter. It is standardized for its content of poliomyelitis antibodies in compliance with the requirements of the National Institutes of Health, of the United States Public Health Service, inluding the release of each lot individually before its istribution.

Actions and Uses.—Poliomyelitis immune globulin human) is a passive immunologic agent that contains gnificant concentrations of antibodies useful for the ttenuation or prevention of poliomyelitis, measles, and ifectious (epidemic) hepatitis. Significant but tempo-ry protection against the development of paralytic oliomyelitis has been produced from the second through ie fifth week following injection; but the likelihood of ecuring protection against paralytic poliomyelitis by ie use of the globulin is much less than the likelihood of ecuring protection against measles or infectious (epi-emic) hepatitis by the same means. The preparation is quivalent in usefulness to immune serum globulin (hu-ian) for the prevention or modification of measles when ijected within the first 6 days, but not beyond the 10th lay, following initial exposure. It also prevents or ttenuates infectious (epidemic) hepatitis when in-ected during the incubation period; it apparently con-ers passive immunity to that infection for 6 to 8 weeks.

Poliomyelitis immune globulin (human) is regarded s being free from the virus of serum hepatitis. Sensitiza-on to repeated injections is extremely rare. Injections ccasionally may be followed by local tenderness and tiffness of muscles persisting for several hours. Care hould be exercised to avoid accidental intravenous ad-inistration.

Dosage.—Poliomyelitis immune globulin (human) is dministered only by intramuscular injection, prefer-bly in the buttock. *Careful technique is essential to void accidental intravenous injection.*

For protection against paralytic poliomyelitis, the verage dose to be injected is calculated on the basis of .14 cc. per pound (0.31 cc. per kilogram) of body veight. This dose may be repeated in 6 weeks if con-inued protection is desirable.

For the modification of measles, the dose is calculated n the basis of 0.02 to 0.0246 cc. per pound (0.044 to .055 cc. per kilogram) of body weight; for complete revention, at least 0.10 cc. per pound (0.22 cc. per ilogram) should be employed. Either dose preferably hould be given within 6 days after initial exposure.

For prevention or attenuation of infectious (epi-emic) hepatitis, the suggested dose is 0.02 cc. per ound (0.044 cc. per kilogram) of body weight in chil-lren or adults; this dose should be repeated in 3 weeks f longer protection is desired.

Cutter Laboratories and Sharp & Dohme, Division of Merck & Co., nc., cooperated by furnishing scientific data to aid in the evaluation of oliomyelitis immune globulin (human).

Vibesate.—A mixture containing 9.3% polvinate and .1% malrosinol in a mixture of organic solvents and a ropellant.

Actions and Uses.—Vibesate is a modified polyvinyl lastic that forms a rapidly drying, transparent, pliable, nd occlusive film when applied topically as a liquid pray containing a suitable volatile solvent and gaseous ropellant. This film is useful as a surgical dressing, omewhat resembling that of flexible collodion. Vibesate ilm is semipermeable to water vapor, permitting the es-ape of moisture when applied to the skin. It retards the escape of fluids and electrolytes from injured areas, but it does not prevent such loss from the tissues. The transparency of the plastic film permits detection of evidence of infection in superficial wounds, and it can be peeled off readily when drainage and local anti-infective therapy become necessary.

Vibesate is useful as an occlusive surgical dressing for burns as well as for operative wounds and other surface lesions, particularly when the use of gauze or other fabricated dressings is undesirable or inconvenient. Like other local applications for burns, the film may relieve pain because of the exclusion of air. It is better adapted for dressing burns that are to be treated by the exposure method than for those treated by the older compression gauze technique. The plastic film also may replace gauze or other fabrics as a definitive surgical dressing for various closed operative incisions that do not require protective padding or the prolonged use of drains. In the open reduction of fractures it permits the application of skin-tight plaster casts. The film also is suitable for covering certain skin eruptions, including macerated excoriations, decubitus and traumatic ulcers, and abrasions. The film usually remains intact for the period of normal healing unless the area involved is subject to considerable motion or stress; removal and reapplication may be required to maintain occlusion or to permit proper care of contaminated wounds. There is, of course, especial danger if anerobic organisms proliferate.

Vibesate is considered to be a relatively inert plastic and has not been reported to cause toxic, sensitivity, or allergic reactions or to interfere with healing. The volatile ethyl acetate-acetone solvent employed as a vehicle has not produced significant irritation, but transitory smarting or stinging occurs during application to sensitive surfaces. For this reason contact with the eyes or other delicate mucous membranes should be avoided. The gaseous propellant employed, a fluoro-chloro hydrocarbon, ordinarily does not come in close contact with the tissues; however, the volatile solvent and propellant are hazardous from the standpoint of accidental inhalation and flammability. Care should be taken during application to avoid inhalation of the vapors or their use near an open flame. The container should not be punctured close to an open flame or thrown into a fire.

Dosage.—Vibesate is applied topically by spraying the area of the wound or lesion to be dressed. The affected area should first be cleansed thoroughly and allowed to dry. The spray usually should be applied back and forth, parallel to the injured surface at a distance of not less than 15 cm. (6 in.), preferably at about 30 cm. The spraying should include a suitable border of normal skin to afford proper anchorage. The film is allowed to dry for at least 30 seconds after each application and the spray repeated two or three times as may be required to obtain a tough, flexible film with a final thickness of 0.05 to 0.08 mm. To insure ease of removal the film thickness should not be less than the minimum. The film may be applied directly over sutured wounds, and it may be peeled off when thoroughly dry and reapplied whenever indicated.

Aeroplast Corporation cooperated by furnishing scientific data to aid in the evaluation of vibesate.

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USE OF CORTISONE IN RHEUMATIC CARDITIS WITH CONGESTIVE HEART FAILURE

The place of cortisone and related hormones in the treatment of acute rheumatic fever, including acute rheumatic carditis, remains controversial. Some persons consider these hormones to exert no more effect than salicylates in such cases.[1] However, a considerable number of experienced clinicians hold that the use of cortisone-like hormones is the most effective measure presently available for suppression of the rheumatic inflammatory reaction in the heart and hence is indicated in the treatment of acute rheumatic fever.[2]

Congestive heart failure in rheumatic fever can be attributed to one or more of at least three factors: (1) reversible weakening of the myocardium from the rheumatic inflammatory process (rheumatic myocarditis), (2) excess strain on the heart muscle from damaged valves, and (3) irreversible changes in cardiac muscle secondary to rheumatic inflammation. The cortisone-like hormones are considered to relieve congestive failure in active rheumatic carditis by means of their suppressive effect on the first of these factors: the active rheumatic myocarditis.

Initially, there was some hesitation in the use of co tisone against acute rheumatic carditis with congesti failure, since it was theorized that the salt-retaining effe of cortisone might lead to an increase in the degree failure. However, experience has shown that the co gestive heart failure has abated, in the majority of cas after such treatment. In only a few cases has the co gestive heart failure been increased, and in most of the the initial increase subsequently has been followed an abatement or disappearance of congestive heart fa ure, presumably when the antirheumatic effect of hormones has had time to take effect. The use of newer cortisone-like hormones with lessened salt-reta ing tendencies, such as prednisone and prednisolo should prove of value from the standpoint of avoidi an initial aggravation of congestive failure arising fr retention of salt. To produce an equivalent antirh matic effect, doses of prednisone or prednisolone sho be about one-fourth the dose of cortisone.

In the treatment of acute rheumatic fever some[3] n advocate the use of 300 mg. of cortisone daily for weeks, after which time the dose is gradually lesse and finally discontinued over a period of two to th weeks. With such doses of cortisone the use of a containing 50 mg. or less of sodium daily and sup mentary potassium is recommended. Others[4] h employed initially 200 to 300 mg. of cortisone d (sometimes less for small children), until all signs rheumatic activity have been suppressed (often one two weeks) and thereafter have reduced the dose about 100 to 150 mg. daily for the next four to six we or more; then the dose has been tapered off in anot few weeks, as permitted by the patient's response. M agree that no one routine schedule of dosage has been devised that is satisfactory for all patients rather, that the dose must be regulated so that a suffici suppressive amount is given for the duration of the act phase of the disease. Recurrences after treatment flares after reduction of dosage) indicate the need further treatment (or a temporary increase in dosag

In the treatment of rheumatic carditis with congest heart failure the cortisone-like hormones should not considered the sole treatment but, rather, should be p of a complete program that should also include in bed, low-salt diet, penicillin, and, if necessary, uretics, digitalis, and oxygen. The use of salicyla along with the hormones has been suggested by son

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1. The Treatment of Acute Rheumatic Fever in Children: A Cooperative Clinical Trial of ACTH, Cortisone, and Aspirin, A Joint Report by the Rheumatic Fever Working Party of the Medical Research Council of Great Britain and the Subcommittee of Principal Investigators of the American Council on Rheumatic Fever and Congenital Heart Disease, American Heart Association, Circulation **11**: 343-377 (March) 1955.

2. (*a*) Massell, B. F.: Medical Progress: ACTH and Cortisone Therapy of Rheumatic Fever and Rheumatic Carditis, New England J. Med. **251**: 183-190 (July 29); 221-228 (Aug. 5); 263-270 (Aug. 12) 1954. (*b*) McEwen, C.: Symposium on Rheumatic Fever and Rheumatic Heart Disease: The Treatment of Rheumatic Fever, Am. J. Med. **17**: 794-803 (Dec.) 1954. (*c*) Greenman, L.; Weigand, F. A.; Mateer, F. M., and Danowski, T. S.: Cortisone Therapy of Initial Attacks of Rheumatic Carditis: I. Clinical Data, A. M. A. Am. J. Dis. Child **89**: 426-441 (April) 1955; II. Laboratory Findings, ibid. **89**: 442-450 (April) 1955. (*d*) Bunim, J. J.: Rheumatic Fever, in Lukens, F. D. W.: Medical Uses of Cortisone, Including Hydrocortisone and Corticotropin, New York, the Blakiston Company, Inc., 1954, pp. 276-298.

3. Footnotes 2*b* and *c*.

4. Footnote 2*d*. Barnes, A. R., and others: Acute Rheumatic Fever Treated With Cortisone and Corticotropin, in Thomas, L.: Rheumatic Fever: A Symposium Held at the University of Minnesota on Nov. 29-Dec. 1, 1951, Under the Sponsorship of the Minnesota Heart Association, Minneapolis, University of Minnesota Press, 1952, pp. 274-290.

MEDICAL NEWS

CALIFORNIA

Annual Postgraduate Assembly.—The ninth annual postgraduate assembly of the San Diego County General Hospital will have as guest speakers, Sept. 21-22, the following physicians: Nelson Paul Anderson, Los Angeles (dermatology), Elmer C. Bartels, Boston (medicine), Willard M. Allen, St. Louis (obstetrics and gynecology), LeRoy Abbot, San Francisco (orthopedics), Merl J. Carson, Los Angeles (pediatrics), Willis J. Potts, Chicago (surgery), and Wyland F. Leadbetter, Boston (urology).

Course on Surgical Techniques.—Designed for the general surgeon to relate anatomy to standard and newer surgical techniques, a course in surgical anatomy will meet Sept. 20-Nov. 22, 7:30-9:30 p. m., on Tuesdays in the second floor lecture room (Room 23-105), University of California Medical Center, Los Angeles, under the auspices of university extension. No textbooks will be required for the course, which is limited to 30 students who are graduates of approved medical schools. Requests for information should be made to Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, University of California Medical Center, Los Angeles 24.

Postgraduate Symposium.—The first annual postgraduate symposium will be presented by the medical staff of Herrick Memorial Hospital, Berkeley, Sept. 23, at the Berkeley High School Little Theatre. Members of the Alameda-Contra Costa County Medical Association and all other Bay Area physicians are invited. The sessions will include panel discussions in medicine, surgery, and endocrinology, with the following participants: Drs. Isidore S. Edelman, Morton A. Meyer, Sheldon Margen, and Albert Snell, University of California School of Medicine, San Francisco; Drs. Joseph P. Kriss and Henry P. Brean, Stanford University School of Medicine, San Francisco; and Dr. Francis D. Moore, Harvard Medical School, Boston.

Postgraduate Surgical Programs.—The San Francisco chapter of the American Academy of General Practice will again sponsor a series of postgraduate surgical programs, given by the surgical service of Fort Miley Veterans Administration Hospital in cooperation with the University of California Medical School. The sessions will be held in the auditorium of the Fort Miley VA Hospital, 42nd Avenue and Clement Street in San Francisco, on six Tuesday evenings from 8 to 10 p. m. (from Sept. 20 to Nov. 8, with the exception of Oct. 11 and 18). Twelve hours of educational credit will be given to members of the American Academy of General Practice for attendance. Dr. Louis Brizzolara, chief of surgical service at the hospital, will act as moderator, Dr. Forrest M. Willett, chief of medical service, as coordinator, and Dr. Alexander F. Fraser, president of the San Francisco chapter of the academy, will be chairman.

CONNECTICUT

Children's Tumor Clinic.—A children's tumor clinic has been established at the Yale-New Haven Medical Center under the joint sponsorship of the Yale University School of Medicine and the Grace-New Haven Community Hospital and the Connecticut division of the American Cancer Society. The new clinic will be directed by Dr. David H. Clement, associate clinical professor of pediatrics, and Dr. Alan C. Mermann, clinical instructor in pediatrics. The tumor clinic, designed to work with the family physician on a consultation basis, will supplement or corroborate the physician's diagnosis and will make available to him the services of the entire staff of the medical center.

Course in Infectious Diseases.—Yale University School of Medicine, New Haven, announces a postgraduate course for practicing physicians on "Infectious Diseases: Problems of Clinical Diagnosis and Management." Eight weekly teaching conferences, each consisting of talks by two or more speakers followed by a question-answer period, will be presented from 2:30 to 5 p. m. Thursday afternoons, Sept. 29-Nov. 17, in the Farnam Auditorium, Yale-New Haven Medical Center, 789 Howard Ave. Dr. Robert R. Wagner, assistant professor of medicine, will serve as director for the following program:

Sept. 29, Response to Infection.
Oct. 6, Acute Respiratory Infections.
Oct. 13, Childhood Infections.
Oct. 20, Central Nervous System Infections.
Oct. 27, Enteric and Intra-Abdominal Infections.
Nov. 3, Systemic Infections.
Nov. 10, Genitourinary Infections.
Nov. 17, Rational Basis of Chemotherapy (symposium).

Registration fee and tuition will be $40 for the series; interns and residents may register without charge. Admission will be limited to physicians who have registered in advance.

ILLINOIS

Programs for General Practitioners.—The Illinois Academy of General Practice will present its seventh annual postgraduate program at 8:30 a. m. on six consecutive Wednesdays beginning Oct. 5 at the Illini Union Building, South Chicago Community Hospital, and the Swedish Covenant Hospital. Faculty members from the University of Illinois, Loyola University, Chicago Medical School, Northwestern University, and the University of Chicago will discuss Consultations in Gynecology; Cardiovascular Disease; Common Surgical Conditions; Hematologic Problems in Everyday Practice; and Enigmas in Treatment.

Chicago

Volunteer Medical Company.—A meeting of the Volunteer Medical Company 9-20, U. S. Naval Reserve, will be held at the U. S. Veterans Research Hospital, Room A-302, 333 E. Huron St. (MOhawk 4-6600), at 8:15 p. m. Sept. 20. "Evaluating the 'Risk of Death'" will be presented by Dr. Charles A. Gianasi, assistant medical director, Continental Assurance Company.

William Allen Pusey Lecture.—The ninth William Allen Pusey Memorial Lecture of the Institute of Medicine of Chicago will be presented at a joint meeting of the institute and the Chicago Dermatological Society at the Congress Hotel Sept. 21, 8:15 p. m. Dr. Harvey Blank, associate medical director, Squibb Institute for Medical Research, New Brunswick, N. J., will discuss "Clinical Aspects of Recent Virus Research." Dr. Blank is research associate in dermatology, Columbia University College of Physicians and Surgeons, New York, and associate in dermatology, University of Pennsylvania Graduate School of Medicine, Philadelphia. This open meeting, to which all are welcome, will be preceded by cocktails, 6 p. m., and dinner ($5.50 per plate). Telephone during the meeting, HArrison 7-3800.

Health Lectures at the Museum of Science and Industry.—The 1955 fall lecture series at the Museum of Science and Industry will be conducted on five Sunday afternoons at 3 p. m. beginning Sept. 25. Dr. Elmer Hess, Erie, Pa., President of the American Medical Association, the first speaker, will be introduced by Dr. F. Garm Norbury, Jacksonville, Ill., president of the Illinois State Medical Society, and will have as his subject "The Patient and the Doctor." The series will include:

Willis J. Potts, Chicago, surgeon-in-chief, Children's Memorial Hospital, Oct. 2, Heart of a Child.
Philip Thorek, Chicago, associate professor of surgery, University of Illinois College of Medicine, Oct. 9, Food for Thought About Health.
James W. J. Carpender, Chicago, professor of radiology, University of Chicago, Oct. 16, X-Rays and Radioactive Substances.
Morris Fishbein, Chicago, clinical assistant professor of medicine, University of Illinois College of Medicine (Rush), Oct. 23, Live Longer and Like It.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

INDIANA

Postgraduate Assembly in Endocrinology.—The seventh annual postgraduate assembly of the Endocrine Society in cooperation with the Indiana University School of Medicine will convene at the Indiana University Medical Center, 1100 W. Michigan St., Indianapolis, Sept. 26-Oct. 1. Out-of-state speakers will include:

- Charles W. Lloyd, Syracuse, N. Y., Anterior Pituitary, Anatomy and Present Status of Physiology—Relation to Hypothalamus.
- Roberto F. Escamilla, San Francisco, Hypopituitarism—Dwarfism, Simmonds' Disease, Sheehan's Syndrome, Frœlich's Syndrome.
- Karl E. Paschkis, Philadelphia, Hyperpituitarism—Gigantism and Acromegaly.
- Brown M. Dobyns, Cleveland, Thyroid, Anatomy and Physiology—Relation to Pituitary.
- Rulon W. Rawson, New York, Goiter—Classification and Present Concepts.
- Henry H. Turner, Oklahoma City, Hypothyroidism—In Childhood and in Adults.
- Edward C. Reifenstein Jr., New York, Parathyroids—Anatomy and Physiology.
- Frank L. Engel, Durham, N. C., Hyperparathyroidism.
- Ralph I. Dorfman, Ph.D., Boston, Adrenal Cortex—Anatomy, Chemistry and Physiology.
- Robert B. Greenblatt, Augusta, Ga., Cushing's Disease and Cushing's Syndrome.
- Lawson Wilkins, Baltimore, Adrenogenital Syndrome, Including Congenital Type—Diagnosis and Treatment.
- Edward H. Rynearson, Rochester, Minn., Hyperinsulinism and Spontaneous Hypoglycemia.
- Earl T. Engle, Ph.D., New York, The Testis—Anatomy and Physiology.

LOUISIANA

Dr. Peters Goes to Kansas.—Dr. Lawrence Peters recently joined the faculty of the University of Kansas School of Medicine, Kansas City, as chairman of the department of pharmacology, leaving a similar position in the Tulane University of Louisiana School of Medicine, New Orleans. Dr. Peters received the bachelor of science degree in pharmacy from the University of Saskatchewan, Saskatoon, Canada, in 1938, doctor of philosophy degree in pharmacology in 1942 from University of Minnesota, Minneapolis, and doctor of medicine degree from Western Reserve University School of Medicine, Cleveland, in 1950.

Refresher-Type Courses. — The Louisiana State University School of Medicine, New Orleans, in cooperation with the Louisiana State Medical Society will resume its one-day refresher-type courses in the fall. This year courses will be given not only at the medical school in New Orleans but also at the Confederate Memorial Medical Center in Shreveport and at other centers in the state. The following courses have been scheduled:

- Gastroenterology, New Orleans, Sept. 24 (under the direction of Dr. G. Gordon McHardy).
- Heart Disease, Shreveport, Oct. 26 (under the direction of Dr. Marion D. Hargrove).
- Surgical Diagnosis, Shreveport, Nov. 16 (under the direction of Dr. Paul D. Abramson).

Programs for each course may be obtained by writing Dr. Edgar Hull, associate dean. Suggestions for the subject matter of future courses will be welcome.

MICHIGAN

State Medical Meeting in Grand Rapids.—The 90th annual meeting of the Michigan State Medical Society will convene at the Pantlind Hotel, Grand Rapids, Sept. 26-27 under the presidency of Dr. Robert H. Baker, Pontiac. The house of delegates will hear a panel on undergraduate medical education, with Dr. Jackson E. Livesay, Flint, speaker, as moderator, and Dr. Albert C. Furstenberg, dean, University of Michigan Medical School, Ann Arbor, and G. H. Scott, Ph.D., dean, Wayne University College of Medicine, Detroit, as participants, at a dinner meeting Monday, 6:30 p. m. (this panel was originally scheduled for a luncheon meeting). Wednesday, general practice day, there will be a surgery panel at 9 a. m. in which "Management of Duodenal Ulcer" will be considered. Dr. Stanley O. Hoerr, Cleveland, will serve as chairman and Drs. Russell Best, Omaha, and Ralph Colp, New York, as participants. "Medicolegal Problems in Industrial Surgery" by Dr. Russell S. Fisher, Baltimore, will precede "Malignancy of the Upper Urinary Tract" by William N. Taylor, Columbus, Ohio. The Wednesday afterno program will include:

- Infections in Newborn Infants, Ralph V. Platou, New Orleans.
- Vaginal Discharge, Leon S. McGoogan, Omaha.
- Endometriosis, with Special Reference to Massive Stilbestrol Thera Willard R. Cooke, Galveston, Texas.
- Evolution of Psychiatry as an Integral Part of General Practice, Maur Levine, Cincinnati.

A general (public) meeting has been scheduled for Wednesd 8:30 p. m. The Andrew P. Biddle Lecture, "Forever Sacre will be delivered by Charles L. Anspach, Ph.D., LL.D., Mo Pleasant, Mich., president of Central Michigan College of E cation. The following program will be presented on Thursd

- Anatomical Considerations in Surgery of the Gall Bladder, Barry Anson, Ph.D., Chicago.
- Visual Symptomatology, Hugo L. Bair, Rochester, Minn.
- Ear, Nose and Throat Symptoms Related to General Medical Con tions, James B. Costen, St. Louis.
- Role of the Family Physician in Psychiatric Problems, Francis Braceland, Hartford, Conn.
- Vaginal Delivery After Prior Cesarean Section, Samuel A. Cosgro Jersey City, N. J.
- Indications for Hysterectomy, Richard W. TeLinde, Baltimore.
- Diabetes Mellitus in Children, Waldo E. Nelson, Philadelphia.
- Development of Communicable Disease and Control, Franklin H. T Iowa City.

The Michigan State Medical Society will be host at a cabar style dance and floor show Thursday, 10:30 p. m., for all reg trants and guests. The Friday assembly will open at 9 a. m. w the William Beaumont M.D. Lecture (sponsored by the Michig Foundation for Medical and Health Education, Inc.), "Rece and Important Changes in Treating Colonic and Rectal Car noma," by Dr. Garnet W. Ault, Washington, D. C. The mainder of the day will be devoted to the following presentatio

- Dermatitis of the Hands, Richard L. Sutton Jr., Kansas City, Mo.
- Relationship of Radiation to Surgery in Cancer of the Breast, Har W. Jacox, New York.
- Cutaneous Manifestations of Systemic Disease, Robert R. Kierla Rochester, Minn.
- Role of the Anesthesiologist in Care of Poliomyelitis Patients, Freder H. Van Bergen, Minneapolis.
- New Developments in Treatment of Coronary Occlusion, Arthur Master, New York.
- Causes of Pain in the Chest, Ovid O. Meyer, Madison, Wis.
- Medical Symposium on "The Newer Therapeutic Tools," A. Carl Ernstene and Penn G. Skillern, Cleveland.

The guest speakers will participate in daily discussion conf ences from 12 noon to 1 p. m. in the Black and Silver Room the Civic Auditorium. The woman's auxiliary will meet sim taneously.

MINNESOTA

Dr. Wangensteen Honored.—The Owen H. Wangensteen Sur cal Education Foundation, an organization made up of form residents of Dr. Wangensteen, will honor the 25th anniversa of his appointment as professor of surgery and chief of the d partment of surgery at the University of Minnesota Medic School, Minneapolis, by presenting a scientific program in th Mayo Memorial Auditorium of the University of Minneso Hospitals Sept. 23-24. On the day preceding the meeting the will be an operative clinic on cardiac surgery. The topics f discussion on Friday and Saturday will be "Experimental Su gery," "The Cancer Problem," and "Surgical Problems." public banquet will be held on Friday evening, honoring D Wangensteen. The principal speaker will be Mr. John M. Ru sell, New York, executive director of the John and Mary Markl Foundation. On the succeeding evening there will be a meetin of the Owen H. Wangensteen Surgical Education Foundation.

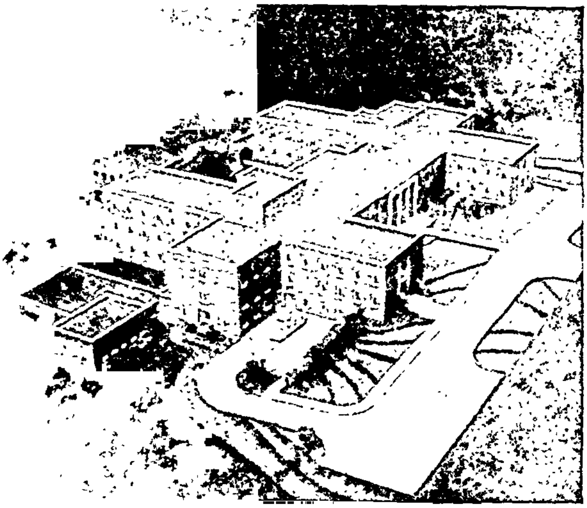
MISSOURI

Mac Cahal Receives Award.—A U. S. Chamber of Commerc committee, headed by the Hon. Sinclair Weeks, Secretary o Commerce, recently presented to Mac F. Cahal, executive secre tary of the American Academy of General Practice, the Dis tinguished Service award, given annually by American Trad Association executives in recognition of exceptionally effectiv public service programs. Mr. Cahal, who has been director o the academy since it was founded eight years ago, formerly was director of the American College of Radiology in Chicago

ersonal.—Dr. Theodore Cooper, intern at the St. Mary's roup of Hospitals of St. Louis University, has been awarded postdoctoral research fellowship in the physiology department f St. Louis University School of Medicine by the U. S. Public ealth Service. His research in the investigation of the re-ctivity of the blood vessels, with respect to various drugs, will e conducted under Albert B. Hertzman, Ph.D., director, de-artment of physiology, and will be aided by a grant from the t. Louis Heart Association. Last June Dr. Cooper received he $500 annual Borden award for the best original work sub-itted by a senior medical student, in which, through research n the action of Adrenalin and related compounds on the blood essels, he developed a technique of measuring the reactivity f the blood vessel, allowing for the initial state of the blood essel before it is subjected to the action of any additional nfluence.——Dr. Dean F. Davies, St. Louis, was recently ppointed research associate of the American Cancer Society. r. Davies was associated with St. Luke's and Missouri Baptist ospitals and the Washington University School of Medicine, vhere he served as assistant professor of biochemistry and ssociate director of the hypertension division of the depart-nent of medicine. His new headquarters are at the American Cancer Society's national office, 521 W. 57th St., New York.

EBRASKA

edication of Psychiatric Institute.—The Nebraska Psychiatric nstitute on the campus of the University of Nebraska College f Medicine in Omaha was recently dedicated at ceremonies in hich the principal speakers were Sen. Roman Hruska, Omaha, nd Dr. Arthur P. Noyes, Norristown, Pa., president, American sychiatric Association. Governor Victor E. Anderson closed he program and presented Dr. Cecil L. Wittson, director of the nstitute, with the key to the building. The institute provides or the teaching and training of psychiatrists, psychologists, sychiatric aides, psychiatric social workers, electroencephalo-raphic technicians, and nurses. It will place emphasis on re-earch and treatment of the mental and emotional problems of hildren and the aged.



Model of Nebraska Psychiatric Institute, University of Nebraska College f Medicine, Omaha.

EW YORK

ociety News.—At its meeting Sept. 20 at Binghamton City ospital Auditorium, the Binghamton Academy of Medicine vill have as speaker Dr. George E. Moore, medical director of he Roswell Park Memorial Institute, Buffalo. His subject will e "Present and Future Programs of the Roswell Park Memorial nstitute."

Hospital Teaching Day.—A teaching day will be held at Roches-er General Hospital Sept. 22. Morning sessions will consist of study of pediatrics through ward walks or choice of the following clinics: (1) Cholografin, (2) fibrinogenopenia, as it relates to premature separation of the placenta, (3) pulmonary function studies in various lung conditions, or (4) ballistocardiography. A panel discussion concerning the use of serums, vaccines, and gamma globulin in the treatment of various infectious diseases of children will be presented in the afternoon. Practical laboratory diagnostic tests, which the practicing physician may use in his office, will be demonstrated by Drs. Milton G. Bohrod and Andrus I. Roodenburg, Rochester. Dr. Waldo E. Nelson, professor of pediatrics, Temple University School of Medicine, Philadelphia, and author of "Textbook of Pediatrics," will discuss "Pediatrics Practice by the Family Physician."

New York City

First Harvey Lecture.—J. C. Eccles, professor of physiology, the Australian National University, Canberra, will deliver the First Harvey Lecture of the 1955-56 series at the New York Academy of Medicine Sept. 22 on Excitatory and Inhibitory Synaptic Action.

Joint Meeting on Medicine and Pharmacy.—A joint program on medicine and pharmacy will be presented at the annual meeting of the Pharmaceutical Council of Greater New York at the Hotel Statler, Sept. 21, 8 p. m. A committee of three physicians appointed by the Coordinating Council of the County Medical Societies of the City of New York cooperated with the committee of the Pharmaceutical Council in arranging the following program on "Radioactive Isotopes in Medicine and Pharmacy":

Solomon Silver, Diagnostic Uses of Radioactive Isotopes.
George Himler, Therapeutic Uses of Radioactive Isotopes.
Paul Numerof, Sc.D., Use of Isotopes in Pharmaceutical Research.

All physicians are cordially invited to attend.

OKLAHOMA

Indian Health Area Office.—Dr. Alonzo F. Brand has been appointed medical officer in charge of the Indian Health Area Office in Oklahoma City, the public health service has announced. Dr. Brand will administer the federal government's expanded program for Indian health in Oklahoma, Kansas, Florida, Mississippi, and North Carolina. About 67,500 Indians living on reservations in these states receive medical care and public health services under the supervision of the Oklahoma City office. Dr. Brand will be responsible for the operation of the eight public health service hospitals for Indians in the area, for the health program in six Indian boarding schools, and for hospital care furnished to Indians through contracts with community hospitals. Dr. Brand was commissioned in the public health service in 1942 and is a career medical officer. He has served with health departments or public health service regional staffs in San Antonio, Texas; New Orleans; Memphis, Tenn.; Richmond, Va.; and San Francisco and has served in Washington, D. C.

PENNSYLVANIA

Society News.—The Pennsylvania Radiological Society recently elected Drs. William T. Rice, Rochester, president; James M. Converse, Williamsport, president-elect; Jesse T. Littleton III, Sayre, first vice-president; John F. Maurer, Greensburg, second vice-president; Walter P. Bitner, Harrisburg, secretary-treasurer; and Carl B. Lechner, Erie, editor.

Philadelphia

Course in Obstetrics and Gynecology for Practitioners.—A 12 week postgraduate course in obstetrics and gynecology for the general practitioner, to be initiated at Hahnemann Medical College and Hospital Sept. 28, will cover prenatal care; toxemias; urologic, psychological, and psychiatric problems; third trimester bleeding; gynecologic back pain; abnormal vaginal bleeding; dysmenorrhea; endometriosis; pelvic cancer; study of the infertile couple; and pediatric and geriatric gynecology. Information about the course, which has been approved for credit by the American Academy of General Practice, may be obtained from Dr. Bruce V. MacFadyen, 230 N. Broad St., Philadelphia 2.

TEXAS

Meeting of General Practitioners.—Guest speakers for the sixth annual scientific assembly of the Texas Academy of General Practice at the Will Rogers Memorial Coliseum Sept. 19-21 will include: Drs. Edwin F. Cave and Laurence L. Robbins, Boston; Drs. William F. Mengert and Philip Thorek, Chicago; Dr. Katherine Dodd, Little Rock, Ark.; Dr. J. Vernon Knight, Nashville, Tenn.; Dr. Louis G. Moench, Salt Lake City; Dr. Carl A. Moyer, St. Louis; Dr. Arthur G. Schoch, Dallas, Texas; and Dr. J. Minott Stickney, Rochester, Minn.

WASHINGTON

Symposium on Cardiovascular Disease.—The seventh annual symposium on heart disease will be presented by the Washington State Heart Association and Washington State Department of Health at the University of Washington School of Medicine, Seattle, Sept. 30 and Oct. 1. The theme will be "Myocardial Infarction" and "Pericarditis." Speakers including Drs. Howard B. Sprague, Boston, Charles E. Kossman, New York, and Jesse E. Edwards, Rochester, Minn., will conduct panel sessions and discuss questions from the audience as well as present scheduled papers, which will include "Conditions Mistaken for Coronary Disease," "Errors in Electrocardiographic Diagnosis," "Employment and Compensation Problems," and "Lesions Simulating Pericarditis." The symposium is the equivalent of nine hours of formal postgraduate training for members of the Academy of General Practice. There will be no registration fee. On Saturday afternoon there will be a meeting of the Washington State Society of Internal Medicine at the medical school auditorium.

GENERAL

Grants for Hematology Research.—The Hematology Research Foundation invites applications for grants-in-aid for hematological research for a period of one year. Nine copies of application must be submitted no later than Nov. 1, 1955, to Hemaology Research Foundation, 64 W. Randolph St., Chicago 1. Application forms are available on request. Awards will be announced by the medical advisory board of the foundation the latter part of November.

Meeting of Medical Writers.—The American Medical Writers' Association will hold its 12th annual meeting at the Hotel Jefferson, St. Louis, Sept. 30. "Clarity in Medical Writing" will be discussed by Dr. Joseph Garland, Boston, and "Do Statistics Clarify or Confuse?" by Alan E. Treloar, Ph.D., Minneapolis. The afternoon session will be on the preparation of medical presentations, with Dr. Dean F. Smiley, Chicago, as moderator. A workshop is scheduled for Oct. 1.

Fake Uniform Salesman Reported.—According to the Alameda-Contra Costa (Calif.) Medical Association, the Topps Garment Manufacturing Company of Rochester, Ind., reports that a salesman claiming to represent their company has been touring the West and taking orders prepaid for uniforms that are not delivered. The company advises that the salesman is not their representative and that orders placed with him are not sent to them. The salesman claims to be a retired Navy man and carries a well-worn uniform catalogue and brief case. He presents Topps Garment Manufacturing Company cards as well as other credentials. He is described as about 50 years old, weighs 250-300 pounds, has an accent, gray hair, and is about 6 ft. 2 in. tall.

Senior Fellowships in Cardiology.—The New York Heart Association this fall will offer three senior fellowships, each for a period of three years and renewable for an additional two years, with annual stipends starting at $6000 and annual increments of $500. These full-time fellowships are available to young men and women under age 35 who have attained a doctorate degree, have demonstrated a competence for research, and who have a definite orientation toward fundamental research in the cardiovascular field. Research programs are to be carried out in recognized institutions within the area of the five boroughs of New York. For further information write the Medical Director, New York Heart Association, Inc., 485
Ave., New York 17. Closing date for applications is Oc
1955.

Catastrophic Accidents.—The Metropolitan Life Insurance
pany reports that, although catastrophic accidents (those k
five or more persons) took nearly 550 lives during the fir
months of this year in the United States, the total is som
smaller than that for the first half of 1954 and is one of the
est on record. Deaths in tornadoes increased appreciably
tornado, crossing five midwestern states on May 25, killed
115 people, 80 of them in Udall, Kan. There was only one
disaster in which 25 or more lives were lost—the Februar
fire in a men's hotel in Chicago in which 29 were killed.
trophes involving dwelling and apartment house fires, mi
aviation, and motor vehicle accidents took substantially
lives during the first half of 1955 than in the similar peri
1954, but the number of deaths in civilian aviation catastr
was somewhat higher.

Rehabilitation Training Program.—The Institute for the
pled and Disabled, New York, announces plans for a s
training program to prepare persons in rehabilitation fo
level positions of coordination and administration in reha
tion centers. The proposed starting date for the seven
course is Dec. 1. Applications received by Oct. 15 will be
preference. Applicants for the course should have had at
three years' experience in some fields of rehabilitation. Tr
will receive a monthly stipend of $250 for the seven
period, in addition to round-trip travel expenses from t
stitute to the places of on-the-job training. All other ex
will be borne by the trainees. Except in cases of unusual q
cation, trainees must be between 30 and 50 years of ag
formation may be obtained from the Director, Institute f
Crippled and Disabled, 400 First Ave., New York 10.

Conference on Hospital Planning.—A Conference on H
Planning will be held Sept. 20, 9-11:30 a. m., in Conv
Hall, Atlantic City, N. J., during the 57th annual convent
the American Hospital Association. All convention regis
are invited to attend the conference, which will be pre
under the auspices of the American Hospital Association C
on Hospital Planning and Plant Operation and joint spons
of the American Association of Hospital Consultant
American Institute of Architects, and the American Assoc
for Hospital Planning. Frank S. Groner, chairman of the
can Hospital Association Council on Hospital Plannin
Plant Operation, will preside. The keynote speaker w
Dr. Leonard A. Scheele, surgeon general of the U. S.
Health Service, Department of Health, Education, and W
Washington, D. C., whose subject will be "New Opport
for Planning Health Facilities."

Lederle Faculty Awards.—The Lederle Laboratories Di
American Cyanamid Company, announces that the foll
physicians are among the recipients of Lederle Medical F
awards for the year 1955:

Matthew N. Levy, department of physiology, Albany (N.Y.)
College.
David D. Thompson, department of physiology, Cornell Uni
Medical College, New York.
Wilbur H. Sawyer, department of physiology, New York Uni
College of Medicine, New York.
Albert M. Hand, department of pathology, University of Te
College of Medicine, Memphis, Tenn.

The Lederle Medical Faculty awards are for the purpo
strengthening the preclinical departments of medical scho
the U. S. and Canada by contributing to the support o
teaching and research activities of members of such de
ments who already have demonstrated high quality of per
ance but who have not yet attained permanent faculty ten

Mississippi Valley Medical Society.—The 20th annual me
of the Mississippi Valley Medical Society will be held a
Hotel Jefferson, St. Louis, Sept. 28-30. The program will in
panel discussions on hypertension, obstetrics, geriatrics, ps
somatic medicine, biliary tract diseases, and gastrointestinal
diseases. Dr. Elmer Hess, Erie, Pa., President, American
cal Association, will be the principal banquet speaker.

peakers at the banquet will be Dr. Victor B. Buhler, Kansas City, Mo., president, Missouri State Medical Association; Dr. Wendell L. Downing, Le Mars, Iowa, president-elect, Iowa State Medical Society; and Dr. F. Garm Norbury, Jacksonville, Ill., president, Illinois State Medical Society. During the scientific sessions Dr. Carroll J. Bellis, Long Beach, Calif., winner of the ssay contest, will present "The Management of Acute Bowel Obstructions"; Dr. Robert P. Cutler, U. S. Public Health Service Narcotics Hospital, Lexington, Ky., "Physician-Hospital Team n Treatment of the Narcotic Addict"; Dr. George A. Hellmuth, Milwaukee, "Treatment of Serious Cardiac Arrhythmias"; and Dr. William L. Watson, New York, "Head and Neck Cancer." Dr. Edward Henderson, Montclair, N. J., will serve as moderator for the panel on diseases of the aged and Dr. William C. Meninger, Topeka, Kan., as moderator for the panel on psychosomatic medicine. Thyroid problems will be considered by Dr. Arnold S. Jackson, Madison, Wis.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated:

Area	Aug. 27, 1955		Aug. 28, 1954, Total
	Paralytic Type	Total Cases Reported	
New England States			
Maine	8	18	8
New Hampshire	..	27	0
Vermont	6	13	3
Massachusetts	153	355	81
Rhode Island	3	36	10
Connecticut	10	56	23
Middle Atlantic States			
New York	70	238	130
New Jersey	..	59	44
Pennsylvania	..	68	89
East North Central States			
Ohio	15	124	119
Indiana	10	35	50
Illinois	40	111	136
Michigan	22	116	156
Wisconsin	115	353	36
West North Central States			
Minnesota	19	60	42
Iowa	7	44	92
Missouri	8	18	20
North Dakota	..	3	7
South Dakota	1	11	9
Nebraska	3	11	62
Kansas	6	21	49
South Atlantic States			
Delaware	..	3	3
Maryland	13	25	12
District of Columbia	2	4	13
Virginia	6	25	41
West Virginia	5	14	22
North Carolina	14	38	46
South Carolina	8	21	13
Georgia	8	14	39
Florida	8	16	52
East South Central States			
Kentucky	13	36	44
Tennessee	8	16	32
Alabama	No report received	No report received	16
Mississippi	4	6	26
West South Central States			
Arkansas	8	17	13
Louisiana	6	11	18
Oklahoma	3	15	33
Texas	30	80	160
Mountain States			
Montana	2	3	9
Idaho	6	10	6
[illegible]	..	..	14
[illegible]	4	10	32
[illegible]	4	10	21
Arizona	..	3	12
Utah	..	4	16
Nevada	..	1	7
Pacific States			
Washington	5	16	21
Oregon	6	18	15
California	33	86	297
Territories and Possessions			
Alaska	3	4	11
Hawaii	1	3	3
Puerto Rico	..	..	..
Total	696	2,286	2,219

Railway Surgeons Meet in Las Vegas.—The Western Association of Railway Surgeons will hold its 52nd annual meeting Sept. 22-24 at the Hotel Thunderbird, Las Vegas, Nev. The sessions will open Thursday at 9:30 a. m. with the address of the president, Dr. Martin C. Lindem, Salt Lake City, followed by "Modern Concepts of Billroth I Gastric Resection with Analysis of Cases" by Dr. Earl Connolly, Omaha; "Evaluation of Pre-employment X-Ray of the Lower Back" by Dr. William L. Sucha, Omaha; and "Hyperventilation Syndrome" by Dr. John M. Read, Elko, Nev. A motion picture film, "Cardiac Arrest 'Resuscitation of Patients Who Die in the Operating Room,'" which will open the Friday program at 9 a. m., will be followed by:

Spontaneous Pneumothorax, Glenn Pierce, San Francisco.
Industrial Aspects of Epididymitis, William A. Summer, San Francisco.
Diagnosis and Treatment of Certain Anemias, Maurice E. Leonard, San Francisco.
Current Status of Antibiotic Therapy, John F. Waldo, Salt Lake City.

The Saturday program, which will include "Lower Extremity Injuries" by Dr. Robert W. Weber, Tucson, Ariz., "Nervous System Reactions Associated with Trauma" by Dr. Robert S. Wigston, Omaha, "Pulmonary Coccidioidomycosis" by Dr. James M. Fritz, Tucson, Ariz., and "The Problem of Sore Throat" by Dr. John F. Waldo, Salt Lake City, will conclude with "Professional Witness, Medicine or Witchery" by Edmund D. Leonard, *attorney-at-law, specialist in workmen's compensation* hearings before the Industrial Accident Commission, state of California, San Francisco.

LATIN AMERICA

Surgical Congress.—The second Panamerican Congress of the International College of Surgeons will be held simultaneously with the eighth Argentine meeting on thoracic surgery Oct. 22-26 in Mendoza, Argentina. The topics to be discussed include: Goiter: Medical and Surgical Treatment; Lung Abscess: Modern Treatments; Carcinoma of the Colon, Sigmoid, and Rectum: Surgical Treatment; Mycosis and Osteomyelitis of the Maxillary Bone; Patent Ductus: Surgical Treatment; and Peroral Endoscopy: Recent Advances. Information may be obtained from the Secretary, Caseros Av. 2153, Buenos Aires, Argentina, or from the Biblioteca Asociacion Medica Argentina Santa Fé 1171, Buenos Aires.

FOREIGN

Dermophlebologic Conference.—The sixth Colloquium of the French Society of Dermatology and Syphilography and the third International Conference on Phlebology will convene at Aix-en-Provence, France, Oct. 14-16, to consider "Trophic Disturbances of Venous Origin in the Legs" in the following aspects: surgical treatment in the lower limbs (except grafting); phlebological aspects (critical study of vascular lesions and trophic disorders); and dermatological studies. Correspondence should be addressed to the Clinique Dermatologique, Hotel-Dieu, Marseilles, France.

Congress on Legal and Social Medicine.—The 4th Congress of the International Academy of Legal and Social Medicine will be held in Genoa Oct. 13-17. The program will include consideration of the question "Can the application of an absolutely new therapy be considered as an experiment?" and of the following topics: "Acute and Chronic Poisoning by Arsenic in Legal Medicine," "The Medicolegal Valuation of Damage from Pneumoconiosis," "Depressive States as a Defense in Murder," and "Anthropology and Social Defense." Several postcongress tours have been planned to Rome, Florence, Venice, Naples, Milan, and the Italian lake region. Further information may be obtained from the general secretary's office of the congress (Istituto di Medicina Legale, via de Toni 12, Genoa, Italy).

Meetings on Dermatology and Syphilology.—The General Assembly of the International Union Against the Venereal Diseases and the Treponematoses will convene at the Barons' Hall, Maschio Angioino, Naples, Italy, Sept. 19-23. The general theme, "The Problem of Medicosocial Assistance to Marines in the Mediterranean Ports," will be introduced Monday at 3:30 p. m. Tuesday afternoon there will be an excursion to the new excavations at Baia and Cuma. Wednesday will be devoted to discussions of "Eventual Modifications to Be Added to the

Principles of the Antivenereal Fight Consequent to the Antibiological Therapeutics" and "Social Consequences of Nongonorrhoeal Urethritis." Demonstration of antivenereal documentaries will constitute the Friday morning program. Presentation of the patients at Professor Monacelli's Clinic will precede the afternoon lecture of Dr. E. H. Hermans, president of union.

The 40th National Congress of the Italian Society of Dermatology and Syphilology will be held at Dermosyphilopathic Clinic Hall, Policlinico, Naples, Sept. 22-25. Pemphigus will be discussed on Thursday. The Friday session will open at 9 a. m. with a symposium on cutaneous enzymology. The afternoon meeting, 4 p. m., will be devoted to presentation of clinical cases and to comments on dermatological iconography. Consideration will be given on Saturday to dermatological roentgenotherapy.

CORRECTION

Mitral Valvuloplasty.—In the filler by this title in The Journal, Aug. 20, 1955, page 1466, the word "less" should precede the word "good" in the seventh line.

MEETINGS

American Medical Association: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

National Conference on Physicians and Schools, Moraine-on-the-Lake Hotel, Highland Park, Ill., Oct. 12-14. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago, Director.

Academy of Psychosomatic Medicine, Hotel Plaza, New York, Oct. 6-8. Dr. Ethan Allan Brown, 75 Bay State Road, Boston 15, Secretary.

American Academy for Cerebral Palsy, Claridge Hotel, Memphis, Tenn., Oct. 10-12. Dr. Robert A. Knight, 869 Madison Ave., Memphis 3, Tenn., Secretary.

American Academy of Neurological Surgery, The Homestead, Hot Springs, Va., Oct. 27-29. Dr. Eben Alexander Jr., Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago, Oct. 9-14. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

American Academy of Pediatrics, Palmer House, Chicago, Oct. 3-6. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Executive Secretary.

American Association of Medical Clinics, Curtis Hotel, Minneapolis, Nov. 4-6. Dr. Edwin P. Jordan, Box 58, Charlottesville, Va., Executive Director.

American Association of Medical Record Librarians, LaSalle Hotel, Chicago, Oct. 3-7. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Director.

American Association of Nursing Homes, Hotel Muehlebach, Kansas City, Mo., Sept. 19-21. Mr. Ira O. Wallace, P.O. Box 366, New Castle, Ky., Secretary.

American Association for the Surgery of Trauma, Drake Hotel, Chicago, Oct. 27-29. Dr. James K. Stack, 700 N. Michigan Blvd., Chicago 11, Secretary.

American Clinical and Climatological Association, The Homestead, Hot Springs, Va., Oct. 31-Nov. 2. Dr. M. N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

American College of Anesthesiologists, Hotel Statler, Boston, Nov. 4-5. Mr. John H. Hunt, 188 West Randolph St., Chicago 1, Executive Secretary.

American College of Cardiology Interim Meeting, Hotel Claridge, Memphis, Tenn., Nov. 10-12. Dr. Philip Reichert, Empire State Bldg., New York 1, Secretary.

American College of Gastroenterology, Hotel Shoreland, Chicago, Oct. 24-26. Dr. Joseph Shaiken, 33 West 60th St., New York 23, Secretary.

American College of Surgeons, Conrad-Hilton Hotel, Chicago, Oct. 31-Nov. 4. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Secretary.

American Dental Association, San Francisco, Oct. 17-20. Dr. Harold Hillenbrand, 222 East Superior St., Chicago 11, General Secretary.

American Fracture Association, Hotel Fontainebleau, Miami Beach, Fla., Sept. 19-22. Dr. Homer D. Junkin, Paris Hospital, Paris, Ill., Secretary.

American Heart Association, Yung Hotel, New Orleans, Oct. 22-26. Mr. Irving Hexter, 44 East 23d St., New York 10, Secretary.

American Hospital Association, Traymore Hotel, Atlantic City, N. J., Sept. 19-22. Dr. Edwin L. Crosby, 18 East Division St., Chicago 1 Director.

American Medical Writers' Association, Jefferson Hotel, St. Lou Sept. 30-Oct. 1. Dr. Harold Swanberg, P.O. Drawer 110, Quincy, Ill Secretary.

American Roentgen Ray Society, Palmer House, Chicago, Sept. 20-2 Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretar

American Society of Anesthesiologists, Hotel Statler, Boston, Oct. 2 Nov. 3. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph S Chicago 1, Secretary.

American Society of Clinical Pathologists, Drake Hotel, Chicag Oct. 10-15. Dr. Clyde G. Culbertson, 1040-1232 West Michigan S Indianapolis, Secretary.

American Society of Plastic and Reconstructive Surgery, Atlan City, N. J., Sept. 25-30. Dr. Kenneth L. Pickrell, Duke Hospi Durham, N. C., Secretary.

American Society for the Study of Arteriosclerosis, Hotel Sherat Chicago, Nov. 6-7. Dr. O. J. Pollak, P.O. Box 228, Dover, D Secretary.

American Society of Tropical Medicine and Hygiene, Somerset Ho Boston, Nov. 2-5. Dr. John E. Larsh Jr., Dept. of Parasitolo School of Public Health, Chapel Hill, N. C., Secretary.

Association of American Medical Colleges, New Ocean Hou Swampscott, Mass., Oct. 24-26. Dr. Dean F. Smiley, 185 N. Wab Ave., Chicago 1, Secretary.

Association of American Physicians and Surgeons, Chicago, Oct. 7 Mr. Harry E. Northam, 185 N. Wabash Ave., Chicago 1, Execut Secretary.

Association of Life Insurance Medical Directors of America, Ho Statler, New York, Oct. 19-21. Dr. Henry B. Kirkland, P. O. Box 5 Newark, N. J., Secretary.

Association of Medical Illustrators, Hotel Barbizon Plaza, N York, Oct. 1-3. Miss Rose M. Reynolds, Univ. of Nebraska Coll of Medicine, Omaha 5, Neb., Corresponding Secretary.

Association of Military Surgeons of the U. S., Hotel Statler, Wa ington, D. C., Nov. 7-9. Colonel Robert E. Bitner, 1726 I St. N. Washington 6, D. C., Secretary.

Association of State and Territorial Health Officers, Hotel Wa ington, Washington, D. C., Nov. 6-12. Dr. Franklin D. Yoder, St Board of Health, Cheyenne, Wyo., Secretary.

Central Association of Obstetricians and Gynecologists, Desh Hilton Hotel, Columbus, Ohio, Oct. 5-8. Dr. Edwin J. DeCosta, Su 602, 116 S. Michigan Ave., Chicago 3, Secretary.

Central Neuropsychiatric Association, The Broadmoor, Color Springs, Colo., Oct. 20-22. Dr. Hamilton Ford, 112 North Bouleva Galveston, Tex., Secretary.

Central Society for Clinical Research, Drake Hotel, Chicago, N 4-5. Dr. Robert H. Ebert, 950 East 59th St., Chicago 37, Secret

Clinical Orthopaedic Society, Skirvin Hotel, Oklahoma City, Sept. Oct. 1. Dr. Marcus J. Stewart, 869 Madison Ave., Memphis, Te Executive Secretary.

College of American Pathologists, Drake Hotel, Chicago, Oct. 10 Dr. Arthur H. Dearing, 203 N. Wabash Ave., Chicago 1, Execu Secretary.

Colorado State Medical Society, Shirley-Savoy Hotel, Denver, S 20-23. Mr. Harvey T. Sethman, 835 Republic Bldg., Denver 2, Ex tive Secretary.

Congress of Neurological Surgeons, *Hotel Statler, Los Angeles,* 27-29. Dr. Philip D. Gordy, 1007 Delaware Ave., Wilmington, D Secretary.

Delaware, Medical Society of, Delaware Academy of Medic Wilmington, Oct. 17-18. Dr. Norman L. Cannon, 621 Delaware A Wilmington, Secretary.

District of Columbia, Medical Society of the, Hotel Statler, Wa ington, D. C., Oct. 10-12. Mr. Theodore Wiprud, 1718 M St., N. Washington 6, D. C., Executive Director.

Gerontological Society, Sheraton-Belvedere Hotel, Baltimore, Oct. 29. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore Secretary.

Gulf Coast Clinical Society, Pensacola, Fla., Oct. 27-28. Dr. Bark Beidleman, 1750 N. Palafox St., Pensacola, Fla., Secretary.

Indiana State Medical Association, French Lick Springs Hotel, Fre Lick, Oct. 16-19. Mr. James A. Waggener, 23 East Ohio St., In anapolis 4, Executive Secretary.

Industrial Health Conference, Shamrock Hotel, Houston, Texas, Se 22-23. Dr. Sidney Schnur, 411 Medical Arts Bldg., Houston 2, Tex Chairman.

Inter-Society Cytology Council, Statler Hotel, Cleveland, Nov. 11- Dr. Paul F. Fletcher, 634 N. Grand Blvd., St. Louis 3, Secretary.

Kansas City Southwest Clinical Society, *Municipal Auditorium,* Kan City, Mo., Oct. 3-6. Dr. W. M. Kitchen, 306 E. Twelfth St., Kan City 6e, Mo., Secretary.

Kentucky State Medical Association, Louisville, Sept. 27-29. Mr. J. Sanford, 620 S. Third St., Louisville, Executive Secretary.

Michigan State Medical Society, Pantlind Hotel, Grand Rapids, Se 26-30. Dr. L. Fernald Foster, 606 Townsend St., Lansing 5, Secreta

Midwest Conference on Rheumatic Diseases, Henry Ford Hospi Detroit, Oct. 5. Dr. J. J. Lightbody, 7338 Woodward Ave., Detroit Medical Director.

Midwestern Section of American Federation for Clinical Researc Thorne Hall, Northwestern University, and Drake Hotel, Chica Nov. 3. Dr. Robert J. Glaser, Barnes Hospital, St. Louis 10, Sec tary.

Mississippi Valley Medical Society, Jefferson Hotel, St. Louis, Sept. 28-30. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Mississippi Valley Trudeau Society, Hotel Savery, Des Moines, Iowa, Oct. 14. Dr. Harold G. Curtis, Sunny Acres, Cuyahoga County Tuberculosis Hospital, Cleveland 22, Chairman, Program Committee.

National Association for Mental Health, Indianapolis, Nov. 4-6. Mr. Robert M. Heininger, 1790 Broadway, New York 19, Director.

New Hampshire Medical Society, Mt. Washington Hotel, Bretton Woods, Sept. 29-Oct. 1. Dr. Warren H. Butterfield, 18 School St., Concord, Secretary.

Oklahoma City Clinical Society Conference, Oklahoma City, Oct. 24-27. Dr. Charles E. Leonard, 512 Medical Arts Bldg., Oklahoma City 2, Secretary.

Omaha Mid-West Clinical Society, Hotel Paxton, Omaha, Oct. 24-27. Mrs. Anne K. Ramsey, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

Oregon State Medical Society, Hotel Heathman, Portland, Sept. 28-Oct. 1. Dr. Richard R. Carter, 1020 S.W. Taylor St., Portland 5, Secretary.

Pennsylvania, Medical Society of the State of, William Penn Hotel, Pittsburgh, Sept. 18-23. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

Postgraduate Assembly in Endocrinology and Metabolism, Indianapolis, Sept. 26-Oct. 1. Dr. John J. Mahoney, Assistant Dean, Indiana University School of Medicine, 1040 W. Michigan St., Indianapolis 7.

Regional Meetings, American College of Physicians:

Billings, Mont., Oct. 7-8. Dr. Harold W. Gregg, 103 North Wyoming St., Butte, Governor.

Charleston, S. C., Oct. 7-8. Dr. Robert Wilson, 165 Rutledge Ave., Charleston, S. C., Governor.

Buffalo, N. Y., Oct. 14. Dr. John H. Talbot, 100 High St., Buffalo 3, N. Y., Governor.

Madison, Wis., Oct. 15. Dr. Frederick W. Madison, 425 East Wisconsin Ave., Milwaukee 2, Governor.

Louisville, Ky., Nov. 5. Dr. Sam A. Overstreet, 332 West Broadway, Louisville, Ky., Governor.

Newark, N. J., Nov. 9. Dr. Edward C. Klein Jr., 6 S. Kingsman Rd., South Orange, N. J., Governor.

Society of Clinical Surgery, Hotel Roosevelt, New Orleans, Nov. 11-12. Dr. Frank F. Allbritten Jr., University of Kansas Medical Center, Kansas City, Mo., Secretary.

Tennessee Valley Medical Assembly, Read House, Chattanooga, Tenn., Oct. 3-4. Dr. Harry E. Jones, 109 Medical Arts Bldg., Chattanooga 2, Tenn., Secretary.

The Constantinian Society, Sheraton-Park Hotel, Washington, D. C., Oct. 26-29. Dr. C. F. Shook, P. O. Box 1035-36, Toledo 1, Ohio, Secretary.

Tri-State Medical Society, Grim Hotel, Texarkana, Tex., Sept. 28-29. Dr. Karlton H. Kemp, 408 Hazel St., Texarkana, Ark., Secretary.

Vermont State Medical Society, Mt. Washington Hotel, Bretton Woods, N. H., Sept. 29-Oct. 1. Dr. James P. Hammond, 337 South St., Bennington, Secretary.

Virginia, Medical Society of, Hotel Jefferson, Richmond, Oct. 16-19. Mr. Robert I. Howard, 105 West Franklin St., Richmond, Executive Secretary.

Western Association of Railway Surgeons, Las Vegas, Nev., Sept. 22-24. Dr. Leo L. Stanley, 1322 Fifth Ave., San Rafael, Calif., Secretary.

Western Orthopedic Association, The Reef, Honolulu, Hawaii, Nov. 7-10. Dr. Ivar J. Larsen, 1133 Punchbowl, Honolulu 13, Hawaii, Secretary.

Western Society of Electro-Encephalography, Westward Ho Hotel, Phoenix, Ariz., Nov. 10-12. Dr. Sylvester N. Berens, 902 Boren Ave., Seattle, Secretary.

FOREIGN AND INTERNATIONAL

Canadian Society for the Study of Fertility, Royal York Hotel, Toronto, Ont., Canada, Oct. 6-8. Dr. Earl R. Plunkett, 469 Waterloo St., London, Ont., Canada, Secretary.

Conference of International Union for Health Education of the Public, Rome, Italy, Apr. 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1er, France, Secretary-General.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Statler, Boston, Mass., U.S.A., Sept. 3-8, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of International Society for Research on Anesthesia, Miami Beach, Fla., U.S.A., Mar. 12-15, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of International Union of Railway Medical Services, Dubrovnik, Yugoslavia, Sept. 19-24. Dr. Jovanovic, Head Office, Yugoslav Railway, Belgrade, Yugoslavia, President.

Congress of International Union Against Venereal Diseases, Naples, Italy, Sept. 25-28. For information address: Prof. Monacelli, University of Naples, Dept. of Dermatology, Naples, Italy.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, May 1956. Prof. Umberto Serafini, Largo della Gancia 5, Rome, Italy, Secretary-General.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik, Hamburg-Eppendorf, Germany.

International Academy of Legal and Social Medicine, Plenary Conference, Genoa, Italy, Oct. 13-17. Prof. Domenico Macaggi, Institut de Medicine legale, Universite de Genes, Genes, Italy, President.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Congress of Allergology, Rio de Janeiro, Brazil, S. A., Nov. 6-13. Dr. Bernard N. Halpern, 197 boulevard St. Germain, Paris 7^{e}, France, Secretary General.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress of European Society of Haematology, Freiburg i,Br., Germany, Sept. 20-24. Prof. Dr. L. Heilmeyer, Hugstetter Strasse 55, Freiburg i,Br., Germany, Chairman.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Buenos Aires, Argentina, S. A., Nov. 19-24, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of International Society of Bronchoesophagology, Buenos Aires, Argentina, S. A., Oct. 28-29. Dr. Juan Carlos Arauz, Cangallo 4015, Buenos Aires, Argentina, S. A., Secretary General.

International Congress of Medical Professional Jurisdiction, Medical Ethics, and Comparative Medical Law, Paris, France, Sept. 30-Oct. 3. Dr. J. R. DeBray, Conseil National de L'Ordre des Medécins, 60, Boulevard Latour-Maubourg, Paris 7e, France, Secretary General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Prof. P. Delore, 13 rue Jarente, Lyon, France, Secretary-General.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for Physical Therapy, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International General Medical Congress, University of Rosario Medical College, Rosario, Argentina, S. A., Nov. 7-12. Dean Jose Imhoff, Santa Fé 3100, Rosario, Argentina, S. A., Chairman.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

Medical Journalism Meeting, Vienna, Austria, Sept. 23. For information address: World Medical Association, 345 East 46th St., New York, N. Y., U.S.A.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P.O Box 672, Cairns, N.Q., Australia, Secretary.

Pan American Congress of International College of Surgeons, Mendoza City, Argentina, S. A., Oct. 22-26. For information address: Secretary, Caseros Av. 2154, Buenos Aires, Argentina, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Medical Social Convention, Bogota, Colombia, S. A., Oct. 15-22. Dr. Leopoldo E. Araujo, Avenida de los Presidentes Num. 506, Apartado 2589, La Habana, Cuba, Secretary.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

Venezuelan Congress of Medical Sciences, Caracas, Venezuela, S. A., Nov. 18-26. Dr. A. L. Briceno Rossi, Apartado 4412, Ofic. del Este, Caracas, Venezuela, S. A., Secretary General.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

World Medical Association, Vienna, Austria, Sept. 20-26. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., U. S. A., Secretary General.

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Oral.* New York City, Oct. 23-27. *Written.* Various locations in United States and Canada, July 20, 1956. Final date for filing application is Jan. 20. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15.

American Board of Dermatology and Syphilology: *Oral.* Washington, D. C., Oct. 14-16. Final date for filing application was March 15. Sec., Dr. B. M. Kesten, One Haven Ave., New York 32, N. Y.

American Board of Internal Medicine: *Oral.* Portland, Ore., Sept. 14-16; Chicago. Nov. 30-Dec. 1. *Subspecialties. Cardiovascular Disease.* Chicago, Nov. 30. The closing date for acceptance of applications for gastroenterology was Feb. 1, and for cardiovascular disease the closing date was June 1. Exec. Sec., Dr. William A. Werrell, 1 West Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* New Haven, November. Oral examinations given in Spring and Fall. Final date for filing application for the Spring examination is October 1, for the Fall examination April 1. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

American Board of Obstetrics and Gynecology: *Written Examination and submission of Case Reports. Part I.* Various locations in United States and Canada, and military centers outside of the Continental United States. Feb. 3, 1956. Final date for filing application is Oct. 1. *Oral and Pathological Examinations. Part II.* Chicago, May 11-20, 1956. Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: *Practical Examination.* Chicago, Oct. 3-7. Written. January 24-26, 1956. *Practical Examination.* San Francisco, June 18-21, St. Louis. Oct. 20-25. Applications for 1957 written examination must be filed before July 1, 1956. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

American Board of Orthopaedic Surgery: *Oral.* Jan. 26-27. Final date for filing application was Aug. 15. *Written.* Various cities, April 1956. Final date for filing application is Nov. 30. Sec., Dr. Harold A. Sofield, 116 South Michigan Ave., Chicago 3.

American Board of Otolaryngology: *Oral.* Chicago, Oct. 3-7. Final date for filing application is April. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

American Board of Pathology: *Written and Practical.* Chicago, Oct. 6-8. Sec., Dr. William B. Wartman, 303 E. Chicago Ave., Chicago.

American Board of Pediatrics: *Oral.* Chicago, Oct. 7-9; and Washington, D. C., Dec. 2-4. Admin. Sec., Mrs. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Physical Medicine and Rehabilitation. *Parts I and II.* Chicago, June 16-17. Sec., Dr. Earl C. Elkins, 200 First St., S. W., Rochester, Minn.

American Board of Plastic Surgery: *Oral and Written.* Philadelphia, Sept. 22-24. Corres. Sec., Miss Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

American Board of Preventive Medicine: *Certification in Public Health.* Kansas City, Mo., Nov. 10-12. Sec.-Treas., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore 5.

American Board of Proctology: *Part II.* Philadelphia, Sept. 17. Sec., Dr. Stuart T. Ross, 131 Fulton Ave., Hempstead, N. Y.

American Board of Psychiatry and Neurology: San Francisco, Oct. 17-18; New York City, December, Philadelphia, April 16-18, 1956. Sec., Dr. David A. Boyd, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: Chicago, Dec. 4. Final date for filing applications for the fall examination was July 1. Candidates who will complete their training by Dec. 31 will be eligible to appear for this examination. Sec., Dr. B. R. Kirklin, Kahler Hotel Bldg., Rochester, Minn.

American Board of Surgery: *Part I.* Centers throughout the United States, in Europe and in the Far East, Oct. 26 and March 28. Closing date for the October examination was July 1 and for the March examination is December 1. *Part II.* Buffalo, Sept. 26-27; Chicago, Oct. 27-28; New York City, Nov. 14-15; St. Louis, Dec. 12-13; New Orleans, Jan. 16-17; Los Angeles, Feb. 13-14; San Francisco, Feb. 16-17; Durham, Mar. 12-13; Boston, May 14-15 and Philadelphia, June 4-5. Sec., Dr. John B. Flick, 255 S. Fifteenth St., Philadelphia 2.

The Board of Thoracic Surgery: *Written.* Various Centers, Sept. 9. Final date for filing applications was July 1. Sec., Dr. Wm. M. Tuttle, 1151 Taylor Ave., Detroit 2.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circul tion magazines and forthcoming network television programs o medical subjects is published each week only for the inform tion of readers of The Journal. *Unless specifically stated, th American Medical Association neither approves nor disappro of the articles and programs reported.*

TELEVISION

Monday, Sept. 19

ABC-TV, 9:30 p. m. EDT. "Medical Horizons" will origina from the University of New York College of Medicine, whi is featuring a report on its department of psychiatry's perce tion and personality study. Presented in cooperation with t American Medical Association.

Tuesday, Sept. 20

NBC-TV, 9:30 p. m. EDT. "March of Medicine" inaugura its fall series with an up-to-the-minute report on the at in medicine, particularly in the use of radioactive isoto to combat cancer. Features pickups from the University Texas M. D. Anderson Hospital, in Houston, Columbia U versity College of Physicians and Surgeons, in New York, a Johns Hopkins University, in Baltimore. Presented in operation with the American Medical Association.

Wednesday, Sept. 21

NBC-TV, 11:30 a. m. EDT. "Medical and Health News w Howard Whitman," a segment of the "Home" program.

MAGAZINES

Saturday Evening Post, Sept. 10, 1955

"Where Are We Now on Polio?" by Steven M. Spencer

In a roundup of events since the Salk poliomyelitis vacc was announced last April, Mr. Spencer states: "In spite all difficulties, most scientists familiar with the situat believe that the vaccine, developed by Dr. Jonas E. Sa . . . has great promise. And there is every reason to h that the Salk formula, or a modification of it, will in ti reduce the toll of paralytic polio." The author's conclus is that, "Until many more facts are in, the question whether or not to give the Salk vaccine remains one the doctor and the parent to decide."

Town Journal, September, 1955

"Triumph over Mental Illness," by Howard LaFay

"Science has at last found chemicals—drugs with stra names like chlorpromazine, reserpine and Frenquel—t help to heal sick minds." The author reports that research can muster strong evidence to support their ideas ab the physical nature of mental disease and that drugs, wh combined with psychotherapy, often "lead the way permanent, basic cures."

Family Weekly Magazine, Sept. 11, 1955

"Do You Make Par as a Patient?" by Charles and Je Komaiko

A series of questions reveal the importance of a pro patient-doctor attitude.

Life, Sept. 5, 1955

"Poison Ivy Picker of Pennypack Park"

"Farmers and suburbanites [have] reason to hope for t first practical ivy immunizer before the poisoning seas of 1956." Tests are being conducted on the efficacy of experimental poison ivy vaccine developed by Columb *University's Dr. Charles R. Dawson.*

GOVERNMENT SERVICES

AIR FORCE

Industrial Physician Wanted.—A vacancy exists at Brookley Air Force Base, Alabama, for a medical officer in industrial health and medicine, GS-12, $7,570 per annum. Persons interested in this position should submit an application for federal employment (standard form 57) to W. N. Ballard, Chief, Placement and Employee Relations Branch, Civilian Personnel Division. These federal forms are available at any first-class or second-class post office.

ARMY

Personal.—Col. Clinton S. Maupin, M. C., a nuclear energy authority, has been made a special assistant to the surgeon general.——Col. Charles L. Leedham, M. C., chief, education and training division, Office of the Surgeon General, retired from the Army on Aug. 31 after 26 years of service. He has accepted a position as director of education, Frank E. Bunts Educational Institute of the Cleveland Clinic Foundation, Cleveland.——The commandant of the Army Medical Service Graduate School, John R. Wood, at Walter Reed, has been made a brigadier general. Prior to coming to Walter Reed, General Wood was chairman of the Medical Research and Development Board in the surgeon general's office.

ATOMIC ENERGY COMMISSION

Dr. Shilling Named to AEC Post.—The Atomic Energy Commission announced the appointment of Dr. Charles W. Shilling as special assistant to the director of the commission's division of biology and medicine. Dr. Shilling, who recently retired from the Navy after 28 years of service, will assist Dr. John C. Bugher, director of the division of biology and medicine, in the administration and coordination of the commission's medical, biological, and biophysics research programs. Dr. Shilling, born in Indiana, holds a B.S. degree from Taylor University in Indiana and a B.A. degree from the University of Michigan. He received an M.D. degree from the University of Michigan Medical School and attended the Harvard School of Public Health in 1932-1933.

In the Navy, Dr. Shilling was assigned to various submarine bases. He conducted research in safety, salvage, and escape equipment for submarines. He became a qualified deep sea diver. In 1939, he was senior medical officer in the rescue of personnel from the stricken submarine U.S.S. Squalus. In 1947, Dr. Shilling joined the Office of Naval Research, where he served for six years. In 1953 he was transferred to the Naval Academy, where he filled concurrent assignments as senior medical officer and head of the department of hygiene.

Discontinue Distribution of Cyclotron-Produced Radioisotopes.—The chairman of the U. S. Atomic Energy Commission has announced that the commission will discontinue, effective Nov. 30, its program for the processing and distribution of cyclotron-produced radioisotopes. The decision will not affect the commission's program for the production and distribution of reactor-produced radioisotopes and electromagnetically-concentrated stable isotopes. The bulk of the radioisotopes distributed by the commission has been produced in reactors. The commission will also continue to perform, on payment of applicable charges, service irradiations in its cyclotrons. The AEC began the production and distribution of cyclotron-produced radioisotopes in 1949 to assist medical and biological research by providing radioisotopes that could not be produced in a nuclear reactor or could not be prepared from reactor-produced radioisotopes to meet activity specifications. The more important of these radioisotopes are beryllium 7, sodium 22, arsenic 73 and 74, iron 59, zinc 65, and iodine 125. This program is being discontinued because it is an activity that, it appears, may now be performed by private groups, and the commission program is no longer necessary to make these materials available for research. A total of 793 shipments of cyclotron produced radioisotopes with a total activity of 4,065 mc. was distributed from June, 1949, through June, 1955.

NAVY

Annual Medico-Dental Symposium.—The sixth Annual Military Medico-Dental Symposium for all armed forces medical personnel of the United States will be held at the U. S. Naval Hospital, Philadelphia, Oct. 17-23. The program has been planned to present professional advances developed by both civilian and military services. Special sessions are planned for officers in the medical, surgical, dental, and administrative fields. Medical department officers, whether on active or inactive duty, are urged to attend. Medical department officers on active duty may be given "authorization orders" (at no expense to the government) in accordance with current instructions. The chief of naval personnel approved this symposium for the awarding of retirement point credits to those eligible Naval Reserve officers attending. Information on the symposium may be obtained from the District Medical Office, Building 4, U. S. Naval Base, Philadelphia 12, Pa.

Medical Reserve Program Officer Billets.—Applications for full-time active duty as a medical reserve program officer are desired from qualified reserve medical officers whose rank is commander or captain and who desire to serve on active duty for a period of two years or longer. The duties of a medical reserve program officer, whose function is to assist the district medical officer in carrying out the directives of the commandant in regard to the medical reserve program, offer an interesting job to the senior reserve medical officer. In addition to accruing one retirement point toward Naval Reserve retirement for each day of active duty performed, medical reserve program officers receive the full pay and allowances of their grade plus the additional $100 per month authorized for medical officers on extended active duty. For information, write to the Chief, Bureau of Medicine and Surgery (Code 36), Navy Department, Washington 25, D. C.

Research Unit No. 3; Cairo, Egypt.—Dr. Dorothy M. Horstmann, associate professor of preventive medicine, Yale University School of Medicine, New Haven, Conn., presented an informal lecture on poliomyelitis on July 27. Dr. Max Theiler, director, Rockefeller Foundation Laboratories in the Rockefeller Institute, visited the unit on Aug. 3. Dr. Theiler, who was awarded a Nobel prize for work on a yellow fever vaccine, was making a tour of Africa in connection with his work on virus diseases. Capt. Joe L. Stockard, M. C., U. S. Army, visited the unit the first week of August, while returning to the United States after spending 10 months at the U. S. Army medical research unit at the Medical Research Institute, Kuala Lumpur, Malaya. Capt. Stockard spoke to the staff on his experiences with leptospirosis in Malaya, a disease that has been responsible for one-third of cases of persons hospitalized for fever of undetermined etiology in Malaya.

VETERANS ADMINISTRATION

Personal.—Dr. Oliver W. Greer, manager of the Veterans Administration Hospital in Newington, Conn., has been appointed manager of the VA Hospital at Lake City, Fla., succeeding Dr. Oma E. Herndon, who was transferred to VA regional office in Atlanta, Ga.——Dr. William K. Freeman, manager, VA Hospital in Gulfport, Miss., has been named to the same position at the hospital in Downey, Ill., succeeding Dr. Lee G. Sewall, who has been appointed manager of the VA Hospital in Pittsburgh.

DEATHS

Branton, Alloys Franklin ⊕ Chattanooga, Tenn.; born in Minneapolis May 19, 1895; University of Minnesota Medical School, Minneapolis, 1920; served during World War I; fellow of the American College of Hospital Administrators; past-president and secretary of the Minnesota Hospital Association and the Tennessee Hospital Association; member of the council on government relations and committee of veterans' relations of the American Hospital Association; president-elect of the Chattanooga Area Heart Association; in May, 1954, was appointed a member of the state commission on hospital licensing; retired as administrator of the Carver Memorial Hospital, T. C. Thompson Children's Hospital, and the Baroness Erlanger Hospital, where he died July 26, aged 60, of cerebral hemorrhage.

Palmer, Theodore Sherman, Washington, D. C.; born in Oakland, Calif., Jan. 26, 1868; Georgetown University School of Medicine, Washington, 1895; in 1889 joined the Bureau of the Biological Survey of the U. S. Department of Agriculture, retiring July 1, 1933; secretary of the American Ornithologists Union from 1917 to 1937; president emeritus since 1941 of the District of Columbia Audubon Society; vice-president of the National Association of Audubon Societies from 1905 to 1935 and of the American Society of Mammalogists from 1928 to 1934; member of many scientific societies; author of several books; died July 23, aged 87, of chronic myocarditis and cardiovascular renal disease.

Darby, John Charles, Hudson, Ohio; born in 1874; Western Reserve University Medical Department, Cleveland, 1900; from 1901 to 1911 on the faculty of his alma mater; for many years secretary of the Soldiers and Sailors Monument Commission; veteran of the Spanish-American War; served as major on the Mexican border; the French government awarded him the Croix de Guerre for his World War I service; served on the staffs of the University Hospitals and Woman's Hospital in Cleveland; died in the Lakeside Hospital, Cleveland, July 30, aged 80, of coronary disease.

Shepherd, Ford ⊕ Santa Cruz, Calif.; Stanford University School of Medicine in San Francisco, 1940; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; interned at the San Francisco Hospital, where he later served a residency; formerly a resident at the Sonoma County Hospital in Santa Rosa and the Stanford University Hospitals in San Francisco; served during World War II; died July 17, aged 42, of subacute yellow atrophy of the liver and myocardial insufficiency.

Abrams, Julius Leonard, New York City; University and Bellevue Hospital Medical College, New York City, 1917; member of the Medical Society of the State of New York; died April 1, aged 66, of a heart attack.

Allen, Joseph Lee ⊕ Greenfield, Ind.; Medical College of Indiana, Indianapolis, 1904; served as coroner of Hancock County; died in the Veterans Administration Hospital, Marion, June 4, aged 80, of coronary thrombosis.

Askew, Rufus Andrew ⊕ Atlanta, Ga.; University of Georgia School of Medicine, Augusta, 1938; member of the Industrial Medical Association; served during World War II; died July 5, aged 48.

Beard, Joseph Sidney ⊕ Edison, Ga.; Atlanta College of Physicians and Surgeons, 1910; died June 1, aged 75, of cancer.

Brower, Charles J. ⊕ Spring City, Pa.; Jefferson Medical College of Philadelphia, 1894; an associate member of the American Medical Association; served on the staff of the Phoenixville (Pa.) Hospital; died April 25, aged 83, of cancer of the bladder.

Burrell, Henry J. ⊕ Benton Harbor, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1914; served during World War I; formerly on the staff of the Mercy Hospital; died in Dowagiac July 25, aged 81.

Butler, Edmund William ⊕ San Francisco; Cooper Medical College, San Francisco, 1911; formerly on the faculty of Stanford University School of Medicine; member of the founders group of the American Board of Surgery; fellow of the American College of Surgeons; served overseas during World War I; past-president of the San Francisco Surgical Society; associated with the Chinese, San Francisco, St. Mary's, and Stanford University hospitals; died in Sebastopol, July 31, aged 68.

Carey, David Stewart ⊕ Freehold, N. J.; Fordham University School of Medicine, New York City, 1909; served during World War I; for many years school physician and county jail physician; on the staff of the Monmouth Memorial Hospital in Long Branch, where he died July 19, aged 69, of adenocarcinoma of the stomach with metastases.

Carter, Edward Perkins, Bronxville, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1894; member of the Association of American Physicians; formerly on the faculty of Western Reserve University School of Medicine in Cleveland, where he was on the staff of the Lakeside Hospital, and the Johns Hopkins University School of Medicine in Baltimore; died July 31, aged 85, of pernicious anemia.

Corry, John A. ⊕ Barnesville, Ga.; University of Georgia Medical Department, Augusta, 1898; served as chairman of the county board of health and as a member of the state board of health; charter member and first president of Barnesville Rotary Club; died July 4, aged 78.

Cowden, Arthur McCluney ⊕ Mobile, Ala.; University of Alabama School of Medicine, 1916; member of the American Academy of General Practice; past-president of the Medical Society of Mobile County; served during World War I; medical examiner for the Mobile County Draft Board during World War II; past-president of the staff of the Mobile Infirmary; on the staffs of the Mobile City Hospital and the Providence Hospital; died Aug. 1, aged 65, of coronary occlusion.

Daniele, Joseph Americo, Crestline, Calif.; University of California Medical School, San Francisco, 1936; interned at St. Joseph's Hospital in San Francisco; died July 27, aged 45, of pulmonary tuberculosis.

Dean, Frank Wilson ⊕ Council Bluffs, Iowa; University of Minnesota College of Medicine and Surgery, Minneapolis, 1890; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; on the staff of the Jennie Edmundson Memorial Hospital; died July 3, aged 92, of arteriosclerotic heart disease.

deBoe, Michael Price ⊕ Coral Gables, Fla.; born in Bedford County, Va., Nov. 29, 1885; University College of Medicine, Richmond, 1908; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served during World War I; associated with the Jackson Memorial, Victoria, and Mercy hospitals in Miami; died in the Veterans Administration Hospital June 28, aged 69, of myocardial infarction and coronary arteriosclerosis.

Deuterman, Joel LeRoy ⊕ Elgin, Ill.; University of Virginia Department of Medicine, Charlottesville, 1930; interned at the Virginia Mason Hospital in Seattle; later a fellow at the Mayo Foundation in Rochester, Minn.; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; served during World War II; on the staffs of the Sherman Hospital and St. Joseph Hospital, where he died Aug. 7, aged 53, of malignant tumor of the pituitary gland.

⊕ Indicates Member of the American Medical Association.

Dew, Roderick ⊕ Woodford, Va.; Medical College of Virginia, Richmond, 1892; died July 1, aged 88, of coronary thrombosis.

Dunn, Charles Hunter, Hopewell Junction, N. Y.; Harvard Medical School, Boston, 1900; at one time on the faculty of his alma mater; died in St. Francis Hospital in Poughkeepsie July 19, aged 79, of injuries received in an autombile accident.

Edmunds, Fred Andrew ⊕ Bethel, Vt.; Baltimore Medical College, 1903; died July 17, aged 77, of coronary infarction.

Edwards, Robert William ⊕ La Grange, Ill.; University of Illinois College of Medicine, Chicago, 1926; member of the American Academy of General Practice; served during World Wars I and II; since May, 1950, health officer of La Grange; on the staffs of the West Suburban Hospital in Oak Park, MacNeal Memorial Hospital in Berwyn, and the Hinsdale (Ill.) Sanitarium and Hospital; died Aug. 10, aged 56, of coronary occlusion.

Emery, Walter Vanalystyne ⊕ Chester, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1906; past-president of the Delaware County Medical Society; on the staffs of the J. Lewis Crozer Homeopathic Hospital and the Chester Hospital in Chester, and the Taylor Hospital in Ridley Park, where he died July 20, aged 74, of cerebral vascular accident.

Gould, William B. ⊕ Glenwood, Ark. (licensed in Arkansas in 1903); served as president of the Bank of Glenwood and as a member of the board of education; died Aug. 2, aged 81, of arteriosclerotic heart disease.

Griffiths, Albert Farnsworth, Bayside, N. Y.; Harvard Medical School, Boston, 1901; died July 22, aged 77, of coronary occlusion.

Grindle, J. Lowell, Northeast Harbor, Maine; Medical School of Maine, Portland, 1903; died July 8, aged 78.

Hall, Chester Garfield ⊕ Portland, Ore.; University of Oregon Medical School, Portland, 1904; associated with St. Vincent's, Emanuel, and Providence hospitals; died in Gold Beach July 23, aged 74, of a heart attack.

Hammer, Howard John ⊕ San Francisco; Wayne University College of Medicine, Detroit, 1935; specialist certified by the American Board of Urology; member of the American Urological Association; served during World War II; on the staffs of the Stanford University, St. Francis Memorial, and French hospitals; died Aug. 3, aged 46.

Hanson, Clarence B., Sioux City, Iowa; Sioux City College of Medicine, 1907; died July 21, aged 81.

Harms, Albert Oscar, Kansas City, Kan.; Kansas City (Mo.) Homeopathic Medical College, 1902; served on the staffs of the Bethany and St. Margaret's hospitals; died Aug. 3, aged 76, of coronary sclerosis.

Harris, Gracchus Crawford Jr., Navasota, Texas; Baylor University College of Medicine, Dallas, 1936; interned at the Jefferson Davis Hospital in Houston; served during World War II; died July 21, aged 46.

Keefe, George Gregory ⊕ West Hartford, Conn.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1922; on the staff of St. Francis Hospital, Hartford, where he died July 21, aged 59, of cerebral vascular accident.

Kibler, Francis Elmo ⊕ Colorado Springs, Colo.; University of Colorado School of Medicine, Denver, 1933; specialist certified by the American Board of Surgery; interned at the Ancker Hospital in St. Paul where he served a residency; served in the U. S. Naval Reserve during World War II; on the staffs of Glockner-Penrose Hospital, St. Francis Hospital, and Memorial Hospital; died May 11, aged 47, of cerebral vascular accident and hypertension.

Kirgan, Joseph William, Cincinnati; Miami Medical College, Cincinnati, 1903; died in Boardman River, Mich., July 5, aged 80.

Koefoot, Theodore Henry ⊕ Broken Bow, Neb.; Chicago College of Medicine and Surgery, 1913; served during World War I; died in Clarkson Hospital, Omaha, June 19, aged 64, of coronary arteriosclerosis.

La Fond, Dolor Joseph Arthur, Ponte Vedra Beach, Fla.; University of Tennessee College of Medicine, Memphis, 1919; member of the Massachusetts Medical Society; died July 2, aged 64.

Lang, William Peter ⊕ Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1901; fellow of the American College of Surgeons; died in Wildwood, N. J., July 24, aged 76, of diabetes, cerebral hemorrhage, and arteriosclerosis.

Laws, Harry John ⊕ Lafayette, Ind.; University and Bellevue Hospital Medical College, New York City, 1907; early in his career secretary of the Tippecanoe County Medical Society; member of the American Academy of General Practice; city health officer; served during World War I; died May 20, aged 71, of coronary occlusion.

Leuty, Joseph David ⊕ Farmington, Wash.; Vanderbilt University School of Medicine, Nashville, Tenn., 1898; died in Medical Lake, June 18, aged 80, of a heart attack.

MacDougall, Walter Hope ⊕ Oswego, Ore.; University of Bombay, India, 1919; served during World War II; on the staff of the Good Samaritan Hospital in Portland, where he died June 29, aged 60, of coronary heart disease and cerebral thrombosis.

Mandelbaum, George Murray, Philadelphia; George Washington University School of Medicine, Washington, D. C., 1926; on the staff of the Albert Einstein Medical Center-Northern Division; died July 5, aged 53, of coronary disease.

Neuwelt, Frank ⊕ Gary, Ind.; University of Chicago Medical School, 1937; certified by the National Board of Medical Examiners; specialist certified by the American Board of Internal Medicine; formerly a resident at the Michael Reese and the Cook County hospitals in Chicago; assistant professor of medicine at the Chicago Medical School; died in Wesley Memorial Hospital, Chicago; July 4, aged 43, of cerebral hemorrhage.

Parker, James William, Peoria, Ill.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1888; died in the Proctor Hospital April 4, aged 87, of cerebral hemorrhage and arteriosclerosis.

Petty, Lester Edwin, Borger, Texas (licensed in Texas under the Act of 1907); member of the State Medical Association of Texas; past-president of the Hutchinson-Carson Counties Medical Society; for many years city health officer; died May 30, aged 81, of emphysema and arteriosclerosis.

Rosser, Robert Guthrie ⊕ Vass, N. C.; North Carolina Medical College, Charlotte, 1909; member of the American Academy of General Practice; for many years secretary of the Moore County Medical Society; on the courtesy staff of the Moore County Hospital in Pinehurst; died in Pinehurst July 17, aged 74, of arteriosclerosis and uremia.

Scheffel, Carl, Miami, Fla.; College of Physicians and Surgeons, Boston, 1914; joint author of "Jurisprudence for Nurses" and author of "Medical Jurisprudence"; died July 18, aged 68, of coronary occlusion and diabetes mellitus.

Shurtz, Richard Charles ⊕ Champaign, Ill.; University of Illinois College of Medicine, Chicago, 1927; at one time coroner of Champaign County; died in the Mercy Hospital, Urbana, July 29, aged 60, of acute bacterial endocarditis.

Talbot, Robert Emmett ⊕ Wilder, Idaho; University of Colorado School of Medicine, Denver, 1914; served during World War II; on the staff of the Caldwell (Idaho) Memorial Hospital; died in Boise June 19, aged 65, of obstructive emphysema and bronchopneumonia.

Wilson, Benjamin Ralph ⊕ Sharpsburg, Ky.; University of Louisville (Ky.) School of Medicine, 1931; member of the American Academy of General Practice; member of the city council; on the staff of the Mary Chiles Hospital in Mount Sterling, where he died May 11, aged 52, of polycythemia vera with myeloid degeneration.

Yates, Joseph Earnest ⊕ Sacramento, Calif.; College of Physicians and Surgeons of San Francisco, 1904; for many years on the staffs of the Sutter General Hospital and Mercy Hospital; died July 19, aged 74, of cerebral hemorrhage and arteriosclerosis.

FOREIGN LETTERS

BRAZIL

Pulmonary Resection in Tuberculosis.—Dr. Jesus Zerbini and his co-workers in *Revista Paulista de Medicina* (46:325, 1955) reported on the results in 255 tuberculous patients in whom pulmonary resection was performed. Age of patients varied between 13 and 61 years, most being in the third decade of life. The authors performed 89 pneumonectomies, 113 lobectomies, 14 lobectomies plus segmental resections, and 39 simple segmental resections. Surgery was obligatory in 185 patients with extensive unilateral tuberculosis, tuberculomas, bronchiectasis, large cavities of the superior lobe, failure of collapsotherapy, and the like and elective only in those with localized lesions. The series was divided into the following three groups: the first included patients operated on without the use of antibiotics; the second, patients previously treated with streptomycin (mainly collapsotherapy failures); and the third, patients who before and after operation had had adequate treatment with antibiotics. The analysis of data shows a marked decrease of incidence and case fatality rates of all main postoperative complications. For instance, disseminations were found in 40.7% of the patients in the first group, in 18.4% of those in the second, and in 6.5% of those in the third, with a case fatality rate of 29.6% in the first group, 10.5% in the second, and no deaths in the third. Similarly, bronchial fistulas appeared in 48.1% of the patients in the first group, 21.0% of those in the second, and 15.1% of those in the third, while the case fatality rate was 28.8% in the first group, 10.5% in the second, and 1.3% in the third. As the authors' experience increased they observed a gradual decrease in large resections, while less mutilating operations became more frequent. Pneumonectomies, lobectomies, and simple segmental resections represented 40.7, 48.1, and 11.2% of the operations, respectively, in the first group, and 56.5, 42.1, and 1.4% in the second group. In the third group, pneumonectomies represented only 23.0%, lobectomies 44.7%, segmental resections 25.0%, and lobectomies plus segmental resections, 7.3%. The case fatality rate for pneumonectomies, 18.5 and 23.3% in the first and second groups, fell to 3.2% in the third. The case fatality rate for lobectomies fell from 25.9% in the first group to 10.5% in the second and 1.3% in the third. There was a similar reduction in the case fatality rate for segmental resections. The results observed in the active series were: clinically cured patients 74.5%; case fatality rate directly related to resection 11.7%; and case fatality rate indirectly related to resection 3.5%. Eighteen patients were operated on recently, with results still to be judged (6.2%). The separate study of each type of resection in the third and last group of 152 patients shows the results obtained in each operation: 35 pneumonectomies were performed showing 71.4% clinical cures and a case fatality rate of 14.2%; 68 lobectomies showed 91.9% clinical cures and a case fatality rate of 1.4%; 38 segmental resections showed 78.9% clinical cures and no deaths; and 11 lobectomies plus segmental resection showed 54.5% clinical cures and no deaths.

Infantile Diarrhea.—At a recent meeting of the Associação Paulista de Medicina, Dr. Guilherme Mattar and his co-workers of the department of pediatrics of the São Paulo State University presented a study on the disturbances of electrolytes in infantile diarrhea. They began by stating that the routine treatment of dehydration by means of a standardized plan, without the individualization of the losses of water and electrolytes in a particular patient, is not the best treatment for dehydrated children. The knowledge of the electrolytic alterations of the serum, through the determination of the several ions, contributes to a more correct therapeutic orientation, but it does not reveal the true deficits of the several electrolytes, owing to the disproportion between their losses and that of water. Only by means of precise metabolic balances may we determine in vivo the total quantitative losses of water and electrolytes in dehydration. The difficulties inherent in metabolic balance studies in small children explain the rarity of such investigations.

The authors performed their investigations on two children aged 4 and 9 months respectively. Both showed qualitatively similar disturbances with marked losses of sodium, chlorine, potassium, calcium, nitrogen, and, in one case, of phosphorus, independent of tissue destruction. The losses of sodium were predominant in the extracellular spaces, but the deviations of sodium toward the interior or the exterior of the cells, according to the phase of dehydration or recuperation, were significant. Comparable transfers of cellular potassium occur in the reverse direction to balance the deviation of sodium. Sodium lost from the extracellular fluid was equivalent to half (case 1) and twice (case 2) the estimated normal extracellular content of the infant. In both patients significant amounts of sodium lost from the extracellular spaces were due to transfer of this ion to the intracellular fluid. These transfers contributed to the establishment of acidosis, and they were equivalent to one and one-half times and two times the estimated normal content of the intracellular fluid or to about one-third of the total extracellular sodium. The losses of intracellular potassium were marked in both patients and could not be explained by the protein disintegration. These losses were estimated as 20 and 28.6%, respectively, of the estimated amount of intracellular potassium, or the equivalent of a little more than half the estimated extracellular sodium. Significant losses of calcium occurred in both infants. In one, loss of phosphorus not proportionate to loss of nitrogen was seen and equalled 20% of the estimated normal content of the tissues. Hypocalcemia appeared in the infant in case 1 when the acidosis was already corrected; loss of phosphorus was present in the second infant before the correction of acidosis. In both patients the symptoms and the biochemical disturbances frequently described in medical literature were not observed. The authors attributed this absence to the use by them early in the treatment of hydrating solutions with the ions necessary to replace the intracellular deficits.

Reservoirs of Schistosoma Mansoni.—At a recent meeting of the Brazillian Society of Hygiene, Dr. A. V. Martins, of the Minas Gerais State University, reported a new and unexpected aspect of the epidemiology of intestinal schistosomiasis. Impressed by the discovery by Kuntz and Schwetz in Africa of sylvatic reservoirs of Schistosoma mansoni, Dr. Martins, with the cooperation of the malaria division of the National Departpartment of Health, captured 210 animals, mostly rodents, in the state of Minas Gerais. Careful examination of these animals showed that 48 of them were naturally infected by S. mansoni, or a general infection index of 22.9%. The most important reservoir hosts found were rodents, such as Nectomys squamipes aquaticus (57.5% infected) and Rattus norvegicus (46.8% infected); however, a marsupial—Didelphus paraguayensis—a kind of oppossum, also showed an infection index of 4.4%. The trematode found in Minas Gerais is the true S. mansoni and not the variety S. mansoni rodentorum found in the African study.

ENGLAND

Changes in Medical Education.—The council of the General Medical Council of Great Britain puts forward from time to time recommendations on the medical curriculum, its period and scope, the subjects it should include, and their priority. The recommendations carry great weight and are observed by the medical schools and examining authorities. At its last session the General Medical Council considered whether the recommendations it made in 1947 required revision. It has in the meanwhile invited observations and suggestions from interested bodies. A committee of the Royal College of Physicians was

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The items in these letters are contributed by regular correspondents in the various foreign countries.

recently set up to inquire into the methods and principles of medical teaching and the medical curriculum. It reports (Royal College of Physicians Committee on Medical Teaching, Second Interim Report, 1955) that several changes have occurred in medical education and practice that must be taken into account in designing future curriculums. Present-day students, many of whom are supported from public funds and by scholarships, specialize early and put examinations first. Compared with their forerunners many students now start medicine with less cultivated minds. Changes have also occurred in the teaching staffs of the medical schools. Teachers, although more numerous, devote themselves to a specialty and lack the breadth of knowledge of the older clinicians. The student does not get the experience he formerly got through apprenticeship to an all-round clinician. Some teaching hospitals rarely treat common diseases and emergencies and have little contact with the community and social life. The growth of "clinical science" has made the staffing of preclinical departments difficult. Physiologists and pharmacologists can often find sufficient scope in clinical studies without teaching in preclinical departments. The report states that although the medical student has practical training in all branches of medicine, the experience he gets is insufficient to enable him to practice any of these branches when he qualifies. He will in fact be discouraged from practicing surgery, anesthetics, psychiatry, or other specialties at anything above an elementary level, unless he undertakes prolonged postgraduate study. Further, there are changes in disease. Some diseases are growing rarer, and new ones, particularly occupational, are being recognized. Social changes affect medicine. There are more old people and more suffering from mental disorders. In the past changes in medicine and medical practice have led to the student being taught new subjects and new techniques without removal of the old ones. "With the growth of knowledge, he has increasingly been offered more than he can digest, and all too often his response has been to form a habit of amassing facts instead of absorbing them—preparing for his examinations rather than for his work as a doctor. The harm thus done to medical education will continue and increase until curricula are deliberately redesigned to provide a basic rather than a comprehensive training for medicine."

In the past the General Medical Council has influenced the teaching of medicine by pointing to deficiencies in the curriculum. The committee thinks that this is not enough. The mass of medical knowledge has become so bewildering that there is more need than ever for the medical student to acquire a grasp of essentials. He should be learning less but understanding more. Now that many clinical teachers are specialists, the traditional training of learning by apprenticeship to a consultant of wide knowledge and experience is in danger. Medical training must be a continuous educational progress in which the curriculum is conceived as a consecutive whole. The committee deprecates the lack of general education and culture of the modern medical student. This is attributed to early and excessive specialization at school because of the high standards of the premedical examination. This examination includes more information than is necessary as a basis for medical study. Likewise, preclinical training is far too detailed and not sufficiently integrated with clinical studies. Faced with a mass of factual information, the student fails to develop the processes of thought and judgment. In the clinical period apprenticeship to a general practitioner is being replaced by multiple appointments in special departments. These tendencies are aggravated by the final examination, which dominates the student's work and thought. He concentrates on memorizing facts that may be asked for in the examination. High failure rates create further anxiety and promote cramming in the library at a time when the student should be learning from experience in the wards and outpatient clinics. In the past, with a curriculum that was not overloaded, the conscientious student, properly selected, could expect to pass. It is regretted that subjects that logically and in practice are closely integrated should be taught as separate disciplines. Although the General Medical Council has always considered that all medical schools should retain their individuality, its recommendations have come to have the force of regulations and the medical curriculum is now governed by the rigid examination system. There is a strong desire to see a reduction in the scope and precision of the recommendations. An American observer said that in the past 10 years no country has produced so many wise reports on the improvement of medical education as has Great Britain, and no country has done so little about it. A change is needed by which medical schools may become free to experiment in medical education radically and individually. The scope of the experiment is great in England because there are many small schools. There is much dissatisfaction with the effects of the existing examination system. The General Medical Council could still maintain effective control, as required by statute, but in a way different from the present control, if more autonomy were given to the medical schools. It would still exercise control by inspection to preserve minimum standards.

Tuberculosis Conference.—The fourth Commonwealth Health and Tuberculosis Conference organized by the National Association for the Prevention of Tuberculosis (NAPT) was held in London in June. The Duchess of Kent, president of the NAPT, presented the Philip medal to Dr. P. V. Benjamin, technical adviser on tuberculosis to the government of India and president-elect of the International Union Against Tuberculosis. This was the first award of the medal, which is being given for outstanding services against tuberculosis, in honor of Sir Robert Philip, founder of the first tuberculosis dispensary. The Minister of Health told of the marked reduction in the last 40 years in the death rate from tuberculosis and of the 70 units for mass radiography operating in England and Wales, or about twice as many as were operating in 1948. About 15 million people, 95% of whom were found to be completely clear, have been thus examined. The proportion found to have active tuberculosis was 3.3 per thousand of those examined. Although we can draw encouragement and inspiration from these figures, we must not allow ourselves to draw satisfaction from them while they remain at those levels.

Dr. H. G. Trimble of Stanford University, California, said that both tuberculin testing and x-ray supplement each other as screening procedures. Tuberculin testing is a well-documented scientific procedure. It is the only test that tells what persons have been infected, in contrast to x-ray or sputum examination, which may show who actually has the disease. Tuberculin testing is important as a case-finding method in areas of low incidence of tuberculosis. In areas of high incidence, as a case-finding method it is of little value, although it may be important in an individual patient as a diagnostic measure. Sample tuberculin testing in any area may effectively evaluate the progress made in the application of other well-known epidemiological procedures. As regards x-ray, a roentgenogram is only a shadow, and we should not attempt to make definite diagnoses on the basis of shadows alone. A mass x-ray survey is an attempt to identify those persons who have roentgenographic shadows suggestive of tuberculosis or other diseases. It is not in itself diagnostic. Further medical study is required to achieve a diagnosis. The members of the committee of the International Union Against Tuberculosis believe unanimously that early diagnosis conditions the success of treatment and the prevention of tuberculosis. It is all the more effective now that we have at our disposal excellent drugs, the speedy application of which increases their effectiveness. The finding of other diseases, especially carcinoma of the lung, may be an important by-product of mass radiography. We should look forward to adequate development of dispensaries in hospitals to make mass x-ray examination a success, but the fact that the problem is defined and made important is reason enough for using mass radiography as an initial case-finding procedure. In the Scandinavian countries this has been carried along, together with BCG vaccination. As tuberculosis becomes less prevalent, efforts must be redoubled to insure its complete eradication.

Salmonella in Sewers.—The presence of Salmonella schottmülleri in sewers is regarded as an indication that an excreter lives in the neighborhood. Investigations by Harvey and Phillips (*Lancet* 2:137, 1955) have shown that this organism may persist in sewers for a long time. They examined samples of Cardiff sewage for over a year and found 11 separate foci of this organism in the city. During an outbreak of paratyphoid spread by cream cakes, and due to a strain of phage-type 1, specimens of sewage from the affected bakery showed the presence of organisms long after all the known excreters in the bakery had been removed. The epidemic was comprised of 92 patients, 76 of whom had eaten cream cakes made by the bakery. Samples of blood were taken from the bakery staff, and two girls who decorated the cakes had positive Widal reactions. After the outbreak had died down, and 10 weeks after the removal of infected persons, the sewage from the bakery was examined and S. schottmülleri was still found. Further information on the survival of this organism in sewers was obtained from an isolation hospital, which admitted a patient with paratyphoid. S. schottmülleri was isolated from the drains for 14 days after the patient's feces were negative. This was in spite of the fact that the patient's stools were treated with 5% phenol for four hours before disposal. As many outbreaks of paratyphoid have been traced to bakery products, the authors make regular weekly examination of the drains from bakeries (with the owners' permission) from March to September and during the rest of the year at monthly intervals. They think that this procedure should provide a reasonable chance of isolating either freshly passed organisms or those that are still living after contamination, during the interval between the placing of swabs in the drains. By this means they hope to identify as soon as possible any excreters employed in bakeries. Positive results lead to immediate examination of the staff.

Combined Immunization.—At the joint annual meeting of the British Medical Association, the Canadian Medical Association, and the Ontario Medical Association, held in Toronto, Canada, in June, Dr. H. J. Parish of London said that at three to four months of age, the child should be vaccinated against smallpox three weeks before any other immunization. In French Equatorial Africa smallpox and yellow fever vaccinations are combined. Smallpox vaccination should be postponed if the child has any skin trouble, such as eczema or a skin condition resulting from a constitutional disturbance. As most deaths from whooping cough occur in the first year of life, protection against this disease should be given early. Many local authorities use combined immunization against whooping cough and diphtheria, and tetanus toxoid can be added with advantage. A large dose (25 Lf) of diphtheria toxoid should be combined with 20,000 million of Hemophilus pertussis and 5 Lf of tetanus toxoid. Three injections of this mixture at monthly intervals are given subcutaneously, beginning at the age of three to four months. A booster dose can be given at one year of age. Immunization with pertussis-containing antigens should not be given if poliomyelitis is prevalent; postinoculation poliomyelitis is more likely after the administration of alum-containing mixtures. In the case of allergic children the initial dose should be small. BCG vaccine should be given to infants only if they have been in contact with known cases and then only after several weeks have elapsed after smallpox vaccination. The repeated use of BCG vaccine may interfere with other immunizations. In Great Britain immunization against diphtheria with alum-precipitated toxoid or aluminum phosphate precipitated toxoid is recommended by the Ministry of Health when the child is 8 to 12 months old, because infants have a congenital immunity in the early months. Combined diphtheria-pertussis immunization may be deferred until the end of the first year. If children were "called up" at this age, those who had had primary immunization previously could be given a booster dose and the others could be given their primary course. Record cards should be kept for all children. Further booster doses can be given at three and five years. For diphtheria, booster doses, or primary courses in the case of the nonimmunized, should be given when children begin school. Dr. J. M. Mather, Vancouver, British Columbia, Canada, said mothers wanted number of injections to be as few as possible, and he favored triple antigen. It is better to treat tetanus if a possible exposure occurs, with a booster dose of toxoid than with tetanus antitoxin. As tetanus often follows trivial injuries, all children should be immunized. Whooping cough commonly occurs in schoolchildren, and, as they can infect infant siblings, the latter should be immunized. Booster doses of pertussis vaccine should be given on entering school.

Dr. P. J. Moloney of Toronto said that important laboratory factors were the variation in antibody response in a particular species, variation in the immunizing potency of different antigens, and the influence on the immunizing antigen of associated impurities. The relative efficiency of different antigens can be compared only if the equivalent amounts of antigen (measured as antigen nitrogen) are injected into the same animals and the antibody produced is also assayed. Associated impurities may affect the potency of an antigen by stimulating or by suppressing production of the protective antibody.

Radiotherapy.—At the same meeting Dr. Edith Paterson of the Christie Hospital and Holt Radium Institute, Manchester, said that in the last 15 years the incidence of leukemia had increased, particularly in professional men. In Canada and in the United States the greatest increase was in men of the older age groups, although this was not true of malignant disease as a whole. In the acute type of leukemia the antimetabolite compounds such as aminopterin, Amethopterin, and 6-mercaptopurine give the best results, although they are only palliative. Radioactive phosphorus, Myleran, and triethylene melamine are also used; 6-mercaptopurine is sometimes of value in treating acute monocytic leukemia.

Dr. Owen B. Miller, Toronto, Canada, reported on 100 patients with advanced malignancy into whose pleural or peritoneal cavities he instilled radioactive gold. Progress was assessed from the frequency of aspirations needed. If a patient responded once, there was likely to be a response to a second injection. The best results were obtained in patients with carcinoma of the breast, 50% of whom showed a satisfactory response. Results in patients with abdominal cancer were not so good. Improvement occurred in half the patients in whom the primary site was unknown. Lymphomas showed little response. Gold injections, not to be used on very ill patients, took some time to act. Dr. Walton, Winnipeg, Manitoba, Canada, said he obtained good results in patients with pseudomyxoma peritonei, using radioactive gold with hyaluronidase.

Etiology of Rheumatic Fever.—At the same meeting Dr. D. A. Long of the Medical Research Council said that group A streptococci provided the most important clue to the etiology of rheumatic fever. Infection with hemolytic streptococci is followed by the poststreptococcic state of Rantz, which develops into the full rheumatic syndrome. Any known type of this organism can cause the disease within three weeks. It occurs not only in the acute state of bacterial invasion and toxemia, adrenocortical stimulation, and protein catabolism but also during the prolonged subsequent stage of repair. Rheumatic fever also occurs in hyperimmune children. The incidence is low in diabetics, and, according to some, it is associated with hyperinsulinism. Rheumatic fever may be due to bacterial allergy, as is suggested by the presence of hypersensitivity of the tuberculin type to streptococcic allergens and an allergic response by the tissues. As a result of work on guinea pigs, Dr. Long suggested that hemolytic streptococci form an exotoxin that acts synergistically with the allergen to produce tissue damage and that transforms a local response to a systemic one. He referred to Coburn's work on the prophylactic value of egg yolk in rheumatic fever and on the separation of an antianaphylactic substance from its prospholipid fraction. A similar product can be obtained from peanut oil. In small doses it depresses sensitivity to tuberculin in guinea pigs. Dr. Long, however, believes that the antirheumatic effect of egg yolk is more likely to be due to essential amino acids than to the presence of an antiallergic substance.

Cancer of the Cervix.—At the same meeting Dr. J. P. A. Latour, Toronto, Canada, said most gynecologists accept the view of the gradual progression over a period of years of carcinoma in situ to clinically diagnosable cancer. Tissue biopsy as a means of diagnosis is unsatisfactory unless a whole ring of tissue is removed. Schiller's test and colposcopy are of doubtful value in indicating the site for the biopsy specimen. The best method is to examine smears from the cervix, removed by scraping with a wooden spatula (Ayre's method). The variations observed are due to the personal factor in reading the smears. If the smears are positive, diagnosis should be confirmed histologically by removing a ring of tissue and making serial sections. Of 21,895 women screened, 375 had positive smears, although cancer was suspected clinically in only 36. In this series, a total of 145 cases of carcinoma in situ was discovered. Early invasive cancers were found in 73% of 107 women with positive smears. No cancer was found in 34 women whose smears were negative but in whom cancer was suspected clinically. Smears can be mailed from outlying districts to centers where cytological examinations are made. Dr. Malcolm Donaldson of London said that the diagnosis of cervical cancer is easier than getting women to consult their physicians early enough to be cured. Although irregular vaginal bleeding is an important warning sign in women over 40 years of age, it is seldom taken seriously by these patients.

ITALY

Treatment of Pericarditis.—At a meeting of the Medicosurgical Society of Romagna, Professor Paolucci said that there are two opposing viewpoints regarding the surgical treatment of chronic constrictive pericarditis; one favors decortication of the heart extended to the point of liberating the right ventricle and the mouths of the venae cavae; the other favors a less radical intervention (Schmieden's operation), which, although limited to liberating the left ventricle, gives satisfactory results. The speaker preferred the conservative method. From the etiological standpoint, pericarditis, which is more common in patients between the ages of 20 and 30 years, is rarely of definitely rheumatic or tuberculous origin; usually the causative factor is obscure.

Bronchial Asthma.—At the same meeting Professor Serafini said that the difficulties encountered in establishing the most adequate therapeutic regimen for each patient with bronchial asthma arise mainly from the fact that the etiological problem of the syndrome has not been completely solved. This situation has led to a certain skepticism about the therapeutic possibilities, but there are today treatments of undoubted efficacy that make possible the remission of the symptoms in most patients and the disappearance of them for long periods of time in some of the rest. Specific desensitization can be useful, and lately it has undergone some very interesting changes. For example, the administration of minimal doses of allergens has proved useful. A combination of desensitization, antihistamines, and cortisone is also useful. Hypodermic injections of epinephrine must be used carefully because the excess use of sympathomimetic drugs may result in status asthmaticus. The speaker believes that morphine has no place in the treatment of bronchial asthma. Among the other dangers secondary to the administration of this drug is its depressing action on the respiratory center.

Synthetic antihistamines are ineffective, but this does not exclude the histaminic mechanism of the asthmatic attack. The effect of cortisone and corticotropin on the severe manifestations of asthma is always favorable and sometimes dramatic. Of 50 patients with status asthmaticus who were given corticotropin intramuscularly, 80% obtained favorable results; this is not possible with any other treatment. Not recovery, however, but only a temporary remission of the symptoms is obtained. The remission may be partial or total depending on the reversibility of the anatomicopathological alterations that are the basis of the asthmatic syndrome. Hydrocortisone given orally is much more active than corticotropin or cortisone for rapidity of action as well as for decrease in the effective dose and for reduction of phenomena of intolerance. The speaker also found that reactions to morphine, quinine, and sulfonamides are encountered with greater frequency and severity in patients with asthma than in other patients. Therefore, a patient with asthma must be given these drugs with great caution.

Splenomegaly in Infants.—At the same meeting Sega and Gobbi stated that in infants sclerocongestive splenomegaly must be differentiated from chronic infective splenomegaly; granulomatous, hemoblastotic, or hemolytic splenomegalies; and the pure splenic form of giant follicular lymphoma (Brill-Symmers disease). The speakers expressed the belief that sclerocongestive splenomegaly and splenic anemia may have an initial phase characterized pathologically by a hyperplastic-reactive, nonspecific, and fibrillopoietic pulpitis in common. It is not possible to say whether sclerocongestive splenomegaly and splenic anemia are two different diseases or different aspects of the same disease. In treating either condition splenectomy should be performed as soon as possible to interrupt the chain of morbid processes that lead to gastrointestinal hemorrhages.

Cancer of the Prostate.—At the 10th convention of the International Society of Urology in Athens, Professor Sorrentino of Naples and his co-workers reported that hormonal therapy is based on the assumption that the androgens influence the development and growth of prostatic cancer in many patients, suppressing as completely as possible the production of androgens. This can be achieved by castration, which surgically removes one of the main sources of androgens, or by giving estrogens. Some workers favor estrogen therapy alone, but most authors agree that the best results are obtained by combining the two methods. Because castration causes reactions in the adrenals that increase their production of the 17-ketosteroids, hormonal therapy can be rendered more efficient by combining it with adrenal and hypophyseal antagonists. These actions are debatable and dangerous, however, and change the situation little when they are used to supplement estrogen therapy that is no longer effective.

The mechanism of action of the artificial estrogens is not clear; the action instead of being hormonal may be pharmacological or radiomimetic. This hypothesis has led to the concept of treating prostatic cancers with androgens or progesterone but conclusive results have not yet been observed. The fact that some cancers of the prostate are not influenced by antiandrogen therapy suggests that prostatic cancer is not a single entity. Results of the antiandrogen therapy are good in many patients, but they are temporary. This is therefore a palliative method of treatment, not devoid of dangers, and apparently unphysiological. The results of irradiation are only fair. Electroresection may be necessary in treating a complicating urinary retention. Treatment with cytochrome oxidase and the urine factor of Sorrentino can be considered as adjunctive treatments. The treatment of choice is prostatectomy, which should be performed as soon as possible. All men over 50 should be examined periodically to detect latent cancers.

PERU

Congress of Sanitary Engineering.—The first Peruvian congress of sanitary engineering was held in Lima in April. Because of the high incidence of infectious diseases in Peru, due in part to the lack of adequate sanitary and hygienic conditions, it is essential that a beginning be made promptly to correct these deficiencies. The government was urged to take steps to improve the water supply and the disposal of sewage. The congress urged the government to reduce or abolish customs duties on the import of sanitary equipment and to encourage the creation of industries producing materials and chemical products necessary to the achievement of improved sanitary standards. In view of the great waste of potable water in the cities, a tax on excessive water consumption was urged. It was also recommended that the government make a survey of sources of potable water, drainage, hydraulic power, and irrigation requirements of all parts of the country. A study should also be made of the best way to control the pollution of public baths, swimming pools, and seashores used for surf bathing. Greater cooperation between the departmental sanitary units and the sanitary and hygienic departments of the cities is needed. To attain this purpose a sanitary engineer or any other functionary of the sanitary unit of a region should be named member ex officio of the municipal department. Organizations in charge of the fight against insect vectors of disease were advised not to rely exclusively on the action of insecticides on adult forms but to include in their programs the use of appropriate larvicides.

SWITZERLAND

Pregnancy and Cortisone.—Workers administering corticotropin or cortisone to gravid laboratory animals have regularly observed the following bad effects on the fetuses: abortion a few days after the start of treatment, birth of a small fetus that is partly resorbed or completely macerated, neonatal death of the young, or congenital anomaly. More or less prolonged courses of cortisone therapy, however, have been administered, apparently without harmful effect, to pregnant women with acute polyarticular rheumatism, pemphigus, herpetiform dermatitis, or threatened Rh sensitization with danger of erythroblastosis fetalis. There has been up till now no reported case in which a patient received cortisone uninterruptedly throughout a pregnancy that was normal in every way but after which the baby showed signs of acute transitory hypoadrenalism. A 28-year-old woman had severe chronic rheumatic polyarthritis. She could not tolerate gold salts and had therefore been maintained for more than three years on a daily dose of 50 to 75 mg. of cortisone. A pregnancy occurring during the period of treatment produced no improvement in the rheumatism, as is usually the case under such circumstances. The patient's disease remained the same, and no change in dosage could be made. Prof. G. Bickel, head of the University Medical Clinic of Geneva, administered a dose of a little over 16 gm. of cortisone during the nine months of pregnancy with no unfavorable effects on the pregnancy, delivery, or postpartum period. The baby was born at term and weighed 3,650 gm. (8 lb. 1 oz.). He was well formed and seemed to be in perfect health, but transitory episodes of hyperglycemic coma occurred, which were swiftly corrected by combined administration of glucose, cortisone, and corticotropin. The baby's symptoms resembled those seen in patients maintained on cortisone therapy that is abruptly withdrawn. An experiment was conducted in 10 pregnant white rats that received daily intramuscular injections of 3 mg. of cortisone throughout gestation. Pregnancy and delivery were normal in every case, but the adrenal glands of the young were definitely smaller than those of young from control animals.

Four Years' Experience with the Betatron.—The betatron does not emit continuous x-rays. In correlation with the phases of alternating current, it gives 50 trains of waves of 10 microseconds each per minute. The biologically active secondary electrons formed at this time reach a significantly greater distance than those of roentgen rays at 200 kv. Furthermore, they are for the most part propagated parallel to the primary ray. There is thus greater deep activity. At the annual meeting of the Swiss Radiological Society at Baden in June, Profs. H. R. Schinz of Zurich and A. Zuppinger of Bern reported the results obtained with this treatment. Schinz irradiated 66 patients with carcinoma of the esophagus. Dramatic, more or less lasting, improvement occurred in 15; longest follow-up in this series was 30 months. He irradiated 37 bronchial carcinomas; 17 patients obtained characteristic subjective improvement. Of 27 patients with carcinoma of the urinary bladder, 2 of the 8 with inoperable lesions have survived symptom-free for two and a half years. Another 35 patients with carcinoma of the uterine cervix, 15 of whom had had a prophylactic operation, were treated; 12 of these have survived without symptoms. Schinz also obtained good results in carcinomas of the body of the uterus and of the ovary. With the exception of the patients irradiated prophylactically following operation, most had far-advanced inoperable lesions. The betatron is thus shown to give results that 200 kv. irradiation could never achieve in the same proportion. Zuppinger obtained excellent results in the irradiation of brain tumors and lesions of the mouth, the maxilla, and the pharynx. Even carcinoma of the stomach benefits from this therapy. The use of betatron irradiation before gastric resection might produce better results in this dangerous form of cancer. The Swiss radiologists consider that treatment with the betatron represents a significant step forward in radiation therapy.

Idiopathic Edema from Sodium Retention with Hyperaldosteronuria.—Since 1949 Prof. R. S. Mach, head of the University Therapeutic Clinic of Geneva, has followed a certain patient. Every time she ingests more than 4 gm. of sodium chloride a day she has weight gain, generalized edema, headache, disturbances of vision, and papilledema. She has no indication of renal, cardiac, or hepatic disease to explain the appearance of the edema. Her syndrome resembles that caused by desoxycorticosterone. Because of this, Mach and his co-workers examined her urine to see if she had an excess of aldosterone. This proved to be the case in three successive tests. This constitutes a new pathogenetic possibility for certain hitherto unexplained edemas. The aldosterone found in the urine was 10 to 15 times greater than that in normal subjects. The elevation was present both in periods of salt-restricted diet and in those of salted diet. The overproduction of aldosterone in this patient, evidenced by the urinary findings, would seem to account for this syndrome. Besides the aldosteronuria that accompanies the lipid nephrosis of cardiopathy, i. e., secondary aldosteronuria, there would seem to exist a primary aldosteronuria of which overproduction of the hormone is probably the cause. In addition to the syndrome reported by Mach, aldosteronism can manifest itself as a potassium depletion syndrome with paralysis.

Pulmonary Tuberculosis, Diabetes, and Cortisone.—Although extreme caution is essential regarding the use of corticotropin and cortisone in patients with infectious diseases, especially tuberculosis, tuberculosis and most other infectious diseases are not aggravated by these agents if a suitable chemotherapeutic agent is administered at the same time. G. Bickel and M. Chauvet of the University Medical Clinic of Geneva recently treated a 72-year-old woman with diabetes of 15 years' standing who had severe caseous tuberculosis in the fall of 1954. The disease evolved toward the cavitation despite combined therapy with streptomycin, isoniazid, and aminosalicylic acid but was rapidly controlled by an intensive course of cortisone therapy (6.75 gm. in 62 days). Not only was the patient in a desperate state, having been unconscious for several days, but also her caseous tuberculosis had developed on a background of diabetes. Cortisone is known to aggravate that disease, but in this case it caused no more than a temporary need for more insulin, which situation corrected itself in less than two weeks after cortisone therapy was stopped. Thus it can be concluded that diabetes, even when associated with severe tuberculosis, does not constitute a formal contraindication to the use of adrenal corticosteroids.

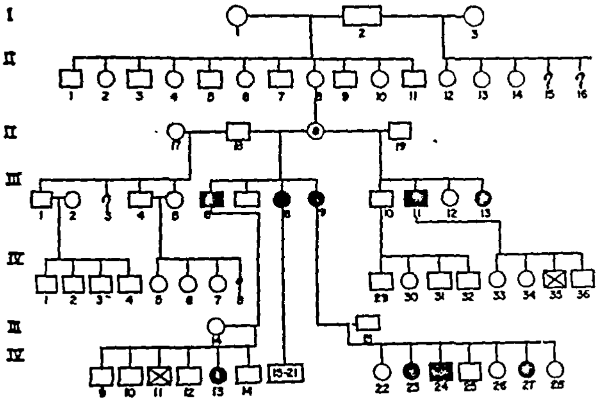
Photoallergic Eczema.—At the annual meeting of the Swiss Society of Allergy in Bern in June, W. Burckhardt of Zurich spoke on the reaction produced by new laundering products containing optic illuminations that, through fluorescence, transform invisible ultraviolet into a blue light, so that the washing appears "whiter than white." A cleaning woman had acute eczema of the face and hands after using such a product. The usual skin tests with the washing compound were negative. On irradiation with visible light and ultraviolet rays of a patch of skin treated with the product, a strong eczematous reaction resulted. This reaction was not reproduced in control subjects, showing that the patient had an allergic hypersensitivity to the combination of optic illuminations and light. Photoallergy was first observed after the administration of sulfonamides. Recently similar phenomena have been observed after administration of chlortetracycline, aminosalicylic acid, and *p*-aminobenzoic acid ester.

Health Insurance in Geneva.—Switzerland is one of the few countries of Europe to fight for free, private medicine that is neither nationalized nor institutionalized. In Geneva, until a few months ago, physicians were not held to a fixed fee, but in view of social necessities, the physicians of Geneva signed an agreement with the Federation of Health Insurance Companies, with the result that only those physicians who signed are allowed to take care of insured patients. Free choice of physicians is guaranteed to insured patients except in cases of hospitalization. The physician is free as regards diagnosis and treatment, except insofar as he must use the most economical means possible. The patient's confidence is protected. A fee has been fixed. It was accepted by the physicians, although they could hardly think of it as a fee adapted to the present cost of living (consultation, $1.25 and house call, $1.85). The treating physician may send a supplementary bill to an insured patient if he believes that the latter is in a position to pay it.

CORRESPONDENCE

IMPORTANCE OF EARLY DETECTION OF GLAUCOMA

To the Editor:—The urgency of early diagnosis of chronic simple glaucoma stems from the fact that good therapeutic results are expected in early cases. By contrast, late cases invariably have sustained irreversible visual loss. The necessity for routine screening examinations is explained by the asymptomatic nature of chronic simple glaucoma. Aptly termed "the thief in the night," glaucoma stealthily encroaches on visual field and acuity, with this loss detected irrecoverably late by the victim. Many physicians have the misconception that glaucoma is an unimportant, rather rare, acute disease, readily recognized by the painful, hard, red eye. These are the characteristics of acute glaucoma. Far more common is chronic simple glaucoma. Thirteen per cent of all blindness reported in North America and Western Europe by Sorsby is due to glaucoma (*Brit. J. Oph'h.*, monograph supplement 16, 1950). Mass-screening procedures (*J. A. M. A.* 56:933 [Nov. 6] 1954) indicate that about 2% of Americans over the age of 40 have chronic simple glaucoma, most of these being early, unrecognized cases. The age of onset of blindness from chronic simple glaucoma is, on the average, between 60 and 65 years (*Canad. M. A. J.* 66:563, 1952). Since the average life expectancy has increased from 45 to 65 years during the past half century, many more people are now surviving to an age where they may be expected to become blind from glaucoma. This increased life expectancy is the prime reason why the physician must be increasingly alert for the detection of chronic glaucoma. Current statistics from the state of Ohio number the known totally blind at 13,500. Of these, 1,320 (about 10%) were blinded by glaucoma during the 10 year period 1945 to 1955. The cost of this blindness is enormous, $2,733,000 being spent in caring for the blind in Ohio in 1954. Economic loss due to the reduced productivity of these blind thousands is inestimable. Clearly, glaucoma has established itself as a major cause of the suffering and economic loss due to blindness.



Glaucoma pedigree showing dominant inheritance.

The early diagnosis of glaucoma can be made only with the help of a high index of suspicion. This suspicion should exist when the following conditions are present. 1. The patient is over 40 years old. Two of every 100 people over 40 years have chronic glaucoma—an incidence similar to that of diabetes mellitus. 2. A family history of glaucoma exists. Being a dominantly inherited characteristic (see figure), glaucoma should be included in the family history just as are diabetes and hypertension. Every ophthalmologist knows of cases of glaucoma detected simply by taking a family history. More than one case of glaucoma in a family can be found by questioning in 13 to 25% of patients with chronic simple glaucoma. 3. The anterior chamber is shallow. Simply examining the anterior chamber depth with a flashlight can provide a valuable clue suggesting increased susceptibility to acute glaucoma. Not only patients with glaucoma but also their siblings and children have been shown to have significantly decreased anterior chamber depth. 4. There is unexplained aching of or about the eyes. This is a vague symptom with many causes, common among which are refractive error, sinus inflammation, and psychogenic factors. Since such discomfort may be the only early symptom of chronic glaucoma, it should not be dismissed without investigation. It is not to be inferred that glaucoma can be diagnosed by ocular discomfort. In one series (*Canad. M. A. J.* 66:563, 1952) of glaucoma blind, only 7% had had an acute attack, 24% denied ever having any ocular pain, and 69% had experienced transient episodes of aching and occasional redness of the eyes. 5. There is increased intraocular pressure. In chronic glaucoma the elevation of intraocular tension is slight and cannot be detected reliably by finger tension. Only by routine use of the tonometer in patients over 40 years old can the early diagnosis of chronic simple glaucoma be made. Such routine tonometry is the practice of most ophthalmologists. Unfortunately much of the population is not reached by ophthalmologists, and tonometric screening will have to be done by the general physician or in mass surveys in order to be truly effective. For many years the Ophthalmological Foundation, Inc., New York, has advocated the practice of routine tonometry by the general physician, to be initiated at his request under the guidance of his local ophthalmologist. Tonometry performed by the medical profession would be expected to be a more permanent answer to the glaucoma problem than the mass-screening procedures.

The glaucoma project at Wright-Patterson Air Force Base may be cited as an example of what may be accomplished by a mass-screening survey. During a five day period, 4,013 of the civilian employees underwent tonometric screening. Initial tonometry was performed by nurses, using a Schiøtz tonometer with 7.5 gm. weight. Three hundred fifty-two employees were found to have an elevation of 28 mm. or higher. On recheck by the ophthalmologist, 71 of these 352 were confirmed as elevated. It was assumed the remainder were false positives, although diurnal variations in tension cannot be excluded. These 71 patients were referred to the ophthalmologist of their choice with an explanatory letter. The report of the examining ophthalmologists are tabulated as: confirmed as glaucoma, 37; not confirmed, 25; and no report received, 20. As a result of this survey, therefore, 37 previously undiagnosed cases of glaucoma were detected and placed under proper medical supervision. Furthermore, all persons participating in the survey were introduced to the fact that glaucoma exists as a preventable cause of blindness. Late diagnosis of glaucoma is undesirable because vision already lost is irreplaceable. Nevertheless, proper miotic or surgical therapy will reduce the rate of further progress (except in far-advanced cases). The physician should, therefore, be cognizant of the late signs of glaucoma, including glaucomatous cupping of the optic nerve, visual field loss, decreased visual acuity despite glasses, and spontaneous retinal arterial pulsation.

William H. Havener, M.D.
Claude S. Perry, M.D.
James M. Andrew, M.D.
Department of Ophthalmology
Ohio State University
Columbus, Ohio.

HOSPITAL PATIENT

To the Editor:—I should like once again to call attention to my letter published in The Journal, March 5, page 842, entitled "Missing Hospital Patient." Since publication of this letter I have received numerous replies, from California to Wisconsin, concerning previous hospital admissions of Mr. Leo Lamphere. After escaping from the Iowa Mental Hospital, Lamphere made his way to Wisconsin. He stopped at several hospitals in Illinois, always presenting with hemoptysis and thrombophlebitis and always signing himself out before definite diagnosis could be made. He finally made his way to the Wisconsin State University Hospital, where his behavior paralleled that at the State University of Iowa Hospitals. He is reported to have slashed his femoral artery with a razor. He was transferred to the State Hospital for the Criminally Insane at Waupun, Wis. I wrote to this institution giving them the facts about this extraordinary patient and received no reply. On writing to them again I learned, to my dismay, that the patient had been discharged on June 8, 1955. From Waupun he proceeded to Ann Arbor, Mich., and was hospitalized on the surgical service there. I believe he was discharged from there about Aug. 11, 1955. In addition to his activities as described above, the man has been a professional claims collector from insurance companies. Since May, 1954, this man has made his way from hospital to hospital across California, Oregon, Montana, South Dakota, Minnesota, Iowa, Illinois, and Wisconsin. He was also hospitalized at Salt Lake City, Utah, where his inferior vena cava was ligated. He apparently never does anyone physical harm but is a definite economic liability to the medical profession. The source of his hemoptysis, which may be self-induced, remains a mystery.

JOHN S. CHAPMAN, M.D.
Department of Internal Medicine
State University of Iowa
University Hospitals
Iowa City.

FOREIGN FELLOWSHIP

To the Editor:—A fellowship in pulmonary physiology for foreign doctors, particularly those from the United States, is now available at the Pulmonary Physiology Laboratories of the University of Nancy Medical Center, Nancy, France, under the direction of Dr. Paul Sadoul, associate professor, University of Nancy School of Medicine. This fellowship runs for a minimum of 6 to a maximum of 10 months, commencing August, 1955, to June, 1956. It pays 30,000 francs a month and offers extremely reasonable eating facilities at the university restaurants. The work consists of both pulmonary function examinations on patients and experimental research work on animals in the newly constructed basic science building. Physicians with a cursory knowledge of pulmonary physiology and some background in chest diseases should find this fellowship extremely interesting. I have just returned from six months' work in this setup and found it most stimulating. Some knowledge of the French language is preferable, and with a meager background in French one should be able to converse well enough to participate in all the activities after the first month. Dr. Sadoul has studied pulmonary physiology in the United States in the laboratories of the University of Rochester, New York, and also at Bellevue Hospital, New York. He is one of the recognized authorities of France in this field. The University of Nancy Medical Center is well known for its contributions in the field of pulmonary disease under the guidance of Professor Simonin. The town of Nancy is in the Province of Loraine and closely situated to the borders of Germany, Belgium, Luxemburg, Holland, and Switzerland and is ideally located for short visits into these countries. I highly recommend this position to anyone interested and suggest that they write directly to Dr. Paul Sadoul, Hospital Villemin, Nancy, France.

HERMAN F. FROEB, M.D.
Cardio-Respiratory Laboratory
University of Southern California
Hospital of the Good Samaritan
1212 Shatto St.
Los Angeles 17.

NEW USE FOR OLD GARMENTS

To the Editor:—Having been the victim of intermittent arthritis for over 23 years, I have found one or two simple measures that have proved helpful. Shoulders and knees have been the joints of predilection. Here I found protective covering beneficial. For shoulder protection the upper section of an old shirt or undershirt may be used. That portion of the garment below the first or second button is cut off entirely, and the upper portion is worn as an extra garment. The sleeves may be cut off above the elbows if the elbows are free of pain; otherwise below the elbows. The type of shirt used should be determined by the climatic conditions and the environment: flannel in cold weather and lightweight shirts when the weather is unduly warm At night this garment may be worn under the pajamas. During the day for minimal protection, as in a siesta, the protective garments only will suffice. For the knees I formerly wore thick woolen knee protectors, purchased in department stores or especially knitted for the purpose. In driving a car I have been compelled, at times, to use a small woolen blanket. The wool knee protectors proved too stiff, too tight, or too hot. Rubb knee protectors do not permit the perspiration to evaporate a are almost invariably uncomfortable. Now I simply use for fitting elastic socks from which the foot has been cut awa The upper end fits firmly and well and affords all the prote tion desired, even in long automobile journeys during cold a inclement weather. Old elastic form-fitting socks may pro equally valuable for elbows, ankles, or wrists. The weight of t socks used should be determined by the climatic conditio Before having a patient go to the trouble and expense of buyi special articles, these simple measures should be tried.

LEONARD G. ROWNTREE, M.D.
1342 du Pont Bldg.
Miami, Fla.

DRUG SAMPLES

To the Editor:—Referring to the item "Drug Samples" in t June 4 issue of THE JOURNAL, page 424, I will be happy to r ceive any amount of medicine the readers are willing to se and will put it to good use among the hundreds of chari patients being served daily in this institution. Please se packages to Director, Hospital "Eugenio Espejo," Quit Ecuador, South America.

Augusto Estupiñán, M.D., Director
Hospital "Eugenio Espejo"
Quito, Ecuador, South America.

MISCELLANY

OUR AMERICAN WAY OF LIFE

Herbert Hoover

Following are excerpts from an address "Our American W of Life" given by Herbert Hoover on the occasion of his 8 birthday celebrated by the state of Oregon at Newberg, Or on Aug. 10, 1955.—ED.

It is indeed a great honor to have been invited by the Go ernor and Legislature of Oregon to spend my birthday on t scenes of my boyhood. I was brought here 70 years ago to li in the family of my Uncle Dr. Henry John Minthorn, a countr doctor. My activities hereabouts did not make any great tran formation of human society. But something else does warra the restoration and dedication of this cottage. That is expresse in the plaque you have put upon it. "This House was the Hom of Dr. Henry John Minthorn, a beloved physician in this Com munity." I am honored to be mentioned on the plaque. Wh you have done here is to pay a tribute to all the pioneerin country doctors of our Nation. There are thousands of cottag in this land which should be marked with plaques recallin their devotion.

John Minthorn was one of those devoted men. He was bor 110 years ago in the Quaker faith. He practiced his healin profession mostly in this State for 45 years and he lies burie in this village. As a boy he witnessed the underground in th Midwest, where during the nights the Quakers transporte Negroes escaping from slavery northward to the freedom o Canada. He reached maturity during the Civil War and joine the Union Army out of conviction in the matter of huma slavery. Quaker pacifism did not extend into that area of though Returning from the War, he graduated from the medical school of Iowa, of Pennsylvania and of Ohio. He was equipped wit the full medical skills of his day. In those early days the patient often could not pay the doctor, and Uncle John at interval in his life taught school or did missions to the Indians for th Government in order to make ends meet. But even along wit these duties, he was still the incarnation of the country doctor

Let no one think that the country doctor of a generation ago was not a skilled man. Without the amazing modern aids of diagnosis, he was a sure diagnostician of the major ills of mankind. Without anti-biotics, without vaccines—except for smallpox—without vitamins, without the X-rays and fluorescent photographs of your innards, the country doctor did healing in an amazing degree. Hot towels and cold towels were substituted for aspirin and codeine. No doubt Mother Nature used more pain in her healing processes. But statistics show that a host of his charges reached old age safely. But beyond his healing art, the country doctor did far more. He instilled the community with the common sense of preventive medicine. He brought sympathy, spiritual strength and courage to the troubled patients. He healed their spirit. He brought their babies into the world. He piloted the youngsters safely through their measles, chickenpox and mumps without the aids of modern medicine. His major word of comfort was "You cannot have it twice." He gave counsel and courage to the young and helped them to find a job. He was their life-long friend. He was the confidant of the family and he healed many a family conflict. He was a leader in the affairs of the community.

The plaque on this cottage is a tribute to a great profession which has made much of the spiritual backgrounds of the American people. The species of the country doctor is not extinct. With urban life, paved roads and the automobile, he has changed his name to that of the family doctor. He is better equipped to fight disease and accident, but the family doctor has the same qualities of moral strength, friendship and family guidance as of old. And it is the family doctor's knowledge that these needed moral and spiritual services could not survive socialized medicine that leads him to fight it at every turn. And this is no disparagement of the great specialists who daily save the lives of thousands of our people. But America needs more family doctors.

This occasion also recalls the part of pioneer men and women in the Northwest, of their staunch fidelities to the ideals of free men and the moral and spiritual life with which they endowed our generation. Once upon a time it was the custom of our people to gather on the Fourth of July and someone would read the Declaration of Independence with the Stars and Stripes in the background. Someone spoke on freedom and the greatness of America. It was in this village that I first had that inspiring experience—and from Dr. Minthorn. In order to do our part we, the oncoming generation, packed a drain tile with appropriate gun powder, tamped both ends hard with clay, and fixed a fuse. The fuse was short—and tile proved more powerful than we expected. Dr. Minthorn was busy for hours picking pieces of tile out of the skins of small boys. He engaged in no reprimands. Dr. Minthorn and his generation had deep convictions on the American way of life. Their fathers were the sons of men who had fought the war for American Independence. They themselves had fought the Civil War to free the slaves. Their lights along the way of American life were the Declaration of Independence, the Constitution, Washington's Farewell Address and Lincoln's Emancipation Proclamation. They held that the function of the Federal Government was to safeguard the individual freedoms and trust to the initiative of men to generate progress. Probably some will say that the recalling of those times, of those men, and of those beliefs is an expression of longing to go backward in American life. No sane person ignores the shifting scene on our national stage. But do not forget the many thousands of Dr. Minthorns and their wives who sustained and enlarged the spiritual forces which give the impulse to our way of life today.

During the last score of years our American way of life has been deluged with criticism. It comes from our own people who deplore our faults and genuinely wish to remedy them. Among these I myself have joined because of my anxieties over mistaken policies and especially the influence of Karl Marx on our way of life. Criticism comes daily from the habit of our political parties to deplore the opposition. It arises from the forthright refusal of the American people to wash their dirty linen in secret. It comes from our love of sensational incidents where villainy is pursued by law and virtue triumphs. And it comes from the fuzzy-minded totalitarian liberals who believe that creeping collectivism can be adopted without destroying the safeguards of free men. It comes bitterly and daily from the Communists at home and abroad who would overthrow our American system. And it even comes from free nations whom we have tried to help. Altogether, if we look at the criticisms alone, we seem to be in a very, very bad way and engaged in our decline and fall. In all this clamor we might occasionally mention something good about ourselves. We could point out that our American way of life has perfected the greatest productivity of any nation on earth; that our standard of living is the highest in the world. We could point to our constantly improving physical health and lengthening span of life. We could point out that the mechanical genius of our people has, by millions of labor-saving machines, taken the sweat from the backs of most of our people. In the governmental field, we could suggest that our supposedly decadent people still rely upon the ballot and the legislative hall to settle their differences without a secret police with slave camps. In the cultural field, we could point out that with only about six percent of the world's population we have more youth in our institutions of higher learning than all the rest of the world put together. We could probably enumerate more libraries and more printed serious words than all other 94 percent of all the people of the earth put together. On the moral and spiritual side, we have more hospitals and charitable institutions than all of them. And we could suggest that we alone, of all nations, fought in two world wars and asked no indemnities, no acquisition of territory, no dominations over other nations. We could point to our advancement of the spirit of compassion. We could prove it by the billions of dollars we have made as gifts to save millions from famine and governments from collapse.

Much as I feel deeply the lag in giving full equal chance to our Negro population, yet I cannot refrain from mentioning that our 14 million American Negroes own more automobiles than all the two hundred million Russians or the three hundred million Negroes in Africa. All of which is not boasting, but just fact. And we could say a good deal more. What does all this mean? It means that freedom of mind, of spirit and initiative still lives in America. It means that our people are strong in religious faith. Here alone are the open windows through which pours the sunlight of the human spirit. Here alone, even with all its defects, is human dignity not a dream but an accomplishment. These ideals of freedom and religious faith guarantee there will be no decline and fall of American civilization. Therefore we should lift our eyes unto the hills from whence cometh our help.

BUSINESS PRACTICE

This is the sixth in a series of articles by these authors on various phases of business practice.—Ed.

HOURLY-RATE BASIS OF FEES

Chester Porterfield, San Francisco

and

Geoffrey Marks, Seattle

In the preceding article in this series,[1] we outlined certain ethical considerations for establishing fair medical fees. We saw that a fair fee to the patient would "not generally require him to pay more than other patients are charged by that physician for a comparable service." To the physician, a fair fee was presented as "in proportion to the time and energy that he applies to the particular service." In expanding this concept, we stated: "The hourly-rate approach also meets the requirements of fairness to the physician, in that he is assured of receiving a fairly

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From Porterfield-Marks of California, Management Counsel (Mr. Porterfield) and Porterfield-Marks, Management Counsel (Mr. Marks). Affiliates of Black and Skaggs Associates, Inc.

[1] Porterfield, C., and Marks, G.: Criteria for Establishing Fees, Business Practice, J. A. M. A. **157**: 272 (Jan. 15) 1955.

definite income from every working period, no matter what service he performs, since all his fees are based on the same hourly rate." The foregoing statement has frequently produced vigorous objections from some of our medical friends and clients, who have taken exception to the implications of commercialism that they feel it would impose. Some of them approach the problem from the mystical basis of the physician as healer and argue that the emotional bond between the physician and patient will be shattered if the question of cost is permitted to enter into the picture until the healing efforts have been accomplished. Others object from a more modern viewpoint, that of the physician as medical scientist, on grounds that the scientist's essential objectivity in mobilizing all diagnostic and therapeutic measures at his command must not be hampered by limitations of time or cost.

To both factions, we can only point out that the hopes they apparently voice for an "ideal" atmosphere in which to practice medicine are not presently attainable in our society. In effect, and carried to the logical extreme, their visualizations of this ideal lead them inescapably to the thesis that all health-protective efforts should be financed by society as a whole, which is the fundamental basis of the "socialized medicine" that most seem to fear as the death-knell of personal initiative. (We would only observe, from studying the ever-increasing sphere of public health responsibilities in medicine over the past 50 years, that this apparent encroachment on the field of private practice has occurred through a space of time when the healing potential of private physicians has itself expanded to an even greater extent.) To return to our fundamental argument, we can state it no better than in the ancient Talmudic injunction to the physician that he "be worthy of his hire" by establishing a proper compensation for the services he renders.[2] This proper compensation for valuable services honestly rendered is then our goal to determine, and we have stated our views [1] that the physician's own time spent on the service comes as close to being a fair measure for determining its cost as has been devised up to this present.

HOURLY-RATE BASIS

In order to establish an hourly-rate basis of fees the following arithmetical quantities must first be determined by the physician, and he and his staff must be prepared to devote some time and effort to their derivation.

What Is This Physician's Annual Net Income Objective?—He cannot reply, "as much as possible!" On the hourly-rate basis there is theoretically no limit to how much a physician may earn; in practice, the higher his financial ambitions lead him, the more intensively he must educate his patients to accept his services as worth the higher fees that his ambitions demand. Carried to the extreme, a physician's financial ambitions may lead him to setting such high fees as actually to defeat his goals. The competitive factor, which we customarily decry,[1] operates here to monitor ambition; patients will either find other physicians in the community performing comparable services at lower cost, or will do without the service entirely if they know it is completely beyond their means. The physician who might thus set an exorbitant value on his efforts will eventually find himself "priced out of the market" in one of the traditional applications of free enterprise economy. In this fashion society at large can enforce upon physicians the fact that some are more capable in their profession than are others. But no physician can achieve his own proper level of fees, wherever it may be, unless he selects that level and strives through his own persistent efforts to attain it. The vague desire to "make as much as possible" has led to the abuses that have destroyed the validity of fee schedules currently followed. In summary, the physician's net-income objective must be established realistically.

How Many Productive Hours Annually Can the Physician Spend with Patients?—We generally define "productive hours" as hours spent in the presence of patients. Unless he holds an extremely remunerative teaching, consultative, or hospital appointment in addition to his private practice, the physician's income must be derived from the time spent with his own patients. He frequently devotes many unremunerated hours to clinic work, teaching, writing, research, postgraduate studies, and other professional activities. If he is to earn a fair living, he must be paid for these hours, in some way, that do not carry any or adequate pecuniary reward. His problem here can solved by ignoring these hours in his computations and relati his "desired income" to his productive hours, as defined. Li the man who desired an unusually high income, the man w wishes to devote an unusually high proportion of his time such unremunerative professional activities as the above will fi that he must set higher private fees in order to realize his pe sonal objectives and hope these activities may help to bri recognition that his services are worth his higher personal fe

What Are Various Services Performed by the Individual Ph sician in His Field?—Earlier in this series,[3] we cited the "a vantages of inclusive fees." In preparing his own catalogue services, he should consider this approach, and include ma hitherto separate services under such inclusive heads, establis ing them as true therapeutic entities, not merely grouping the arbitrarily in order to avoid too many categories. In this co nection we would repeat: "In setting up and applying his p sonal schedule of fees, the physician must remind himself th there is no such thing as an office visit. He may examine, dia nose, consult, perform or prescribe treatment, give educati in therapy, reexamine to confirm diagnosis, or determine t progress of therapy; all are different services that individua or in combination may carry different fees." [4]

What Is the Average Time Devoted in Performing Each These Services?—In arriving at these service/time averag through analyses of past performance, the sampling used shou be as extensive as possible. We recommend consideration of minimum of 20 cases in each category, but 50 to 100 see preferable, because the broader the sample the fairer will be t fee finally established. Two principles are involved here. T first, an elementary statistical concept, is that the total ti consumed by the 40 previous cases (including those that we smoothly and demanded a minimum of time and also those th were protracted either by atypical response to therapy, id syncrasy, or unusual demands on the part of the patient) w total very nearly the amount of time that will be consum by the next 40 cases in the same category. The second princip basic to insurance underwriting, is that all patients will pay t same fee for the same service, despite the possibility that service may require an average of 15 hours, with most ca demanding only 13, but some as much as 25 hours. In t example, while it is true that the more fortunate patients pa on a $20 hourly-rate, $40 more than they might have on a "p visit" basis, the patient whose problem requires 25 hours is n penalized by having to pay an extra $200 for the extended me cal care, as well as usually experiencing higher hospital expen and a probable greater loss of income.

Excellent success with this approach was demonstrated to by a group of general practitioner clients whose custom it h previously been to charge $350 for cesarean section. They in cated that in their experience they had rendered this additio service in about one obstetrical case in 50. Therefore, in arrivi at their new inclusive obstetrical fee, we included $7 to co delivery by section, if it were required. In other words, und standing that there would be "no extras," every patient w happy to pay an unidentified part of an inclusive fee as insu ance against the possibility of having to pay a far greater su if she should turn out to be the one in 50.

Closely associated, in effect if not in logic, with this insuran principle, is the powerful psychological factor that patients cu tomarily evaluate a physician's service on a "cure—no-cur basis. That this is true is evident from the type of comment ma by the patient who is cured and the one who is not. If cu results, at worst the patient tends to compare the cost with wh "Dr. X charged Aunt Elsie for the same thing." Cure is uppe most in this patient's mind, with control the intuitive alternati if complete cure is demonstrated as impossible, and the physici is "in for an argument" only when his total fee for that resu is out of line with what the patient thinks is a proper charg (And if the fee—an inclusive one—is presented and accepte in advance of therapy, the patient is unlikely subsequently to consider it improper.) But if therapy is unsuccessful, the patient —especially if the limitations of therapy were not clearly presented and understood—is likely to demand a detailed accounting of all the (futile) services and thereafter to answer any collection efforts with such a rejoinder as "When your fee of $50.00 was quoted to me it seemed like a lot, but I hoped it would be worth it. However, I was really surprised when you ran the bill up to $70.00 and can't see where anything of lasting value was done." Or a son or daughter may protest: "I feel my mother was overcharged for the services she received. The first call was $35.00 and every call thereafter was $5.00, which I don't think was too necessary for what she got out of it. It was just a matter of weighing her once a week." In other words, with fee too closely tied to individual services, the tendency to be analytical and critical predominates. When fee is related, through emphasis on time actually required (even on average) to achieve cure or control, even if the conscientious efforts fail, the patient will be appreciative of the physician's intentions—his total service.

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[2] Bernstein, A., and Bernstein, H. C.: Medicine in the Talmud, Ca fornia Med. **74**:267 (April) 1951.

[3] Porterfield, C., and Marks, G.: Inclusive Fees for Therapy, Busine Practice, J. A. M. A. **155**:1099 (July 17) 1954.

[4] Porterfield, C., and Marks, G.: Keeping Accounts Current, Busin Practice, J. A. M. A. **155**:399 (May 22) 1954.

HOW MUCH INCOME

Only the physician himself will be able to determine what amount of income, in the sense of "take-home pay," will satisfy him. The annual figure he decides upon should be one that will enable him to maintain a standard of living acceptable to his own needs and family requirements; to provide for insurance, investment, retirement, and emergencies; and to allow of reasonable luxuries and indulgences. In arriving at this figure, we generally recommend that even the relative beginner select, if tentatively, his eventual goal, since it appears easier to establish a proper fee schedule for the anticipated future than to start "low" with the intention, seldom acted upon, of gradually increasing it later. We recognize that the beginner, and even the man who has been some time in practice, will not achieve his ultimate income as soon as he sets out to rationalize his basic charges, but the foundations will be laid, and he will approach it as rapidly as he brings his practice under control and his productive time becomes filled. Of course the "ultimate" schedule initially chosen must be subject to periodic adjustment, either because a subsequent check of average service/time relations reveals the need for changes, or because the original income decided upon may not prove adequate as the physician grows older, but the former is a matter of adjustment in particular categories and the latter can be effected by a proportionate increase of all fees. Conversely, in times of economic recession, when the physician's dollar income must also decline, this cut is best effected, as it can be, by a corresponding proportionate decrease in fees. Once the physician has settled upon his proper take-home pay, it is an easy matter to determine his income tax obligations, and by adding this tax figure, the net income that he will have to derive from the practice and other sources is readily arrived at. To this he must then add the actual annual expenses (overhead) of the practice to determine the gross income that will have to be achieved.

HOW MANY PRODUCTIVE HOURS

If a physician plans to take off 4 weeks a year for vacations and conventions, and to work six 6-hour days the other 48 weeks, he should, in the course of a year, put in approximately 1,725 productive hours. Supposing the net income goal (before income tax) that he has selected is $1,500 a month and his overhead (a reasonable ratio) is $1,000 a month. He should now gross $2,500 per month, or $30,000 per year. Divided by 1,725 hours, this results in a rate per hour of slightly under $17.50. On this basis a "15-minute office visit" would have to be charged at around $4.50. Most general practitioners, obstetricians, pediatricians, and internists of our acquaintance react to these statements with the rebuttal that they work at least 12 hours per day, charge about that much per office call, yet gross no more than the $2,500 per month we have cited above for the "six-hour per-day" practitioner. One of the major causes of this disparity is the fact, which we frequently can demonstrate to the physician's embarrassment, that he usually spends less than half his total 12 hours productively, that is, in the direct handling of patients. In addition, he generally collects no more than 80 to 85% of his total charges, the 15 to 20% balance of which eventually are sacrificed as uncollectable. (We have assumed, in our $30,000 gross figure above, 100% collections; in practice we find that this should be discounted to 95 to 98% collections in a properly supervised office.) For those several reasons we recommend that the physician be quite conservative in assuming the number of productive hours he will work in the course of a year, so that the hourly rate he applies will tend to produce more rather than less than the desired income.

These same groups of physicians also most vigorously protest that the demands of their practices will not permit them to limit the number of hours they will work. While it is true that a practice controlled by the hourly-rate fee schedule and other concurrent measures can usually be intelligently controlled in respect of hours worked, suppose that a particular physician finds that he must put in more hours than he has planned to. His hourly rate should still be based on the number of hours he desires to work, and if he spends more time (thereby giving up periods of relaxation or time he should devote to his family) he should receive in compensation an income higher than that which he has intended. This increased income may be poor consolation for his being overworked, but it is overtime pay to which he is clearly entitled.

HOW TO CATALOGUE SERVICES

We have presented above, as the third and fourth of the questions asked as essential to determine the basis of fees, what services are performed and how much time each requires in the practice of the individual physician. We have also emphasized, herein and previously,[3] that we believe services should be considered in terms of total care rather than as individual items. The surgeon and obstetrician have successfully applied this principle for many years; its application to medical, as distinguished from surgical specialties, is somewhat more difficult, but many of our clients have confirmed our argument with resounding success. An internist, for example, cannot in good conscience claim that he has insufficient evidence to estimate how many visits his new diabetic patient should require during the first six months of the initial regimen; if he has seen more than a half-dozen diabetics in a private practice of longer than two years' duration, he has in his files data for at least an initial average. With or without this average, he should be able to outline, from his previous training and experience, the "ideal" control regimen he would like to apply to his own diabetic patients. Perhaps the diabetic-control equation is too easy to determine, from the standpoint of total visits and total time involved over a given number of months, but this is no excuse for lazy alibis regarding other specialties or syndromes. We have counselled with general practitioners in working out average fees for such anomalous entities as the common cold, with rheumatologists in treating the protean complexities of the arthritides, and with psychiatrists in setting up extremely complicated therapy programs.

Our major word of caution in establishing the physician's own catalogue of services is that he consolidate it so far as is possible, following his principle of functional definition. (His goal of clarification and simplification is hardly served if he designates over 100 separate types of service in a study of less than 1,000 consecutive patient visits, as we recently observed in one general practice.) At the same time, his desire to "streamline" must not lead him into the equally fatal error of lumping a majority of services performed in the office as "office visits," whether the service was a renewal of dressings by the nurse, requiring none of his time, or if at the other extreme, he spent an hour in exploring and counselling on the patient's interpersonal maladjustments.

FIGURING THE HOURLY-RATE FEE SCHEDULE

Let us assume that we now have the two basic figures to determine desired net income and the set of service/time averages for the practice, so that we may calculate the physician's hourly-rate fee schedule. The simple procedure is then as follows. Divide the determined annual gross income by the number of hours that are to be worked productively in the course of a year. This gives the hourly rate. Multiply the average time arrived at for each service by this hourly rate. This produces the projected (hourly-rate) fee schedule. We have often found it advisable to suggest an alternate method of arriving at final fees for certain specialties, notably surgery and obstetrics, where there will inevitably be productive peaks and valleys. Therefore it is not feasible to base calculations as above, on working such a regular schedule as six hours a day, six days a week, 48 weeks a year. Therefore the hourly-rate fee schedule must be arrived at via a slightly different method of computation. The method of determining the basic hourly rate is identical, the difference lying in the handling of the averaged service/time factor.

When the average time has been arrived at (and, of course, in obstetrics, surgery, and similar specialties, this average time must include all time that is covered by the fee spent preoperatively and postoperatively with the patient), it will then be assigned a point value. For example, 8 hours—8 points and 10¼ hours—10¼ points. Next the physician will estimate how many times in the course of a full year he can expect to render each of the listed services. The number of performances of each service multiplied by the number of points assigned will give the total points for that service. Addition of all totals for individual services will give the grand total of points to be divided into the intended annual gross. The result of this division will be the value of one point. This point value multiplied by the point value of each particular service will give the hourly-rate fee for that service. For example, let us consider a surgeon who only renders five services, as shown in table 1.

TABLE 1.—*Point-Value Equivalent of Total Annual Hours*

Surgical Procedure	Time, Hr.	Point Value	Times Performed Annually	Total Points
1	8	8	20	160
2	6½	6½	28	182
3	10¼	10¼	16	164
4	4	4	34	136
5	15	15	18	270
Grand Total				912

Supposing the intended gross income (as in our previous example) is to be $30,000. The value of a point will thus be approximately $33. The projected fee schedule for this surgeon, with fees stated in round numbers (actual calculated fee in parenthesis) and the results incomewise are given in table 2.

TABLE 2.—*Projected Fee Schedule and Income Results*

Surgical Procedure	Projected Fee	Times Performed Annually	Gross Income
1	$265 (264)	20	$ 5,300
2	$200 (206)	28	5,600
3	$340 (338)	16	5,400
4	$130 (132)	34	4,420
5	$500 (495)	18	9,000
			$29,720

Fee Adjustments.—Whichever method of fee computation is applied, when the projected fee schedule is arrived at, it will be found that, while the majority of the fees will not vary markedly from those already in effect, there will be a few in which conversion to the projected hourly-rate fee schedule will mean a radical revision either upwards or downwards. While we do not deviate from our basic premise that each physician is entitled to establish fees proper to his personal approach and activity and should do so, we cannot practically propose immediate alterations so marked that they draw unfavorable attention to the changes, and in these instances we counsel progressive modifications toward the desired level.

The reason why there will be such occasional differences is the arbitrary manner in which existing fee schedules are customarily developed. For example, a surgeon may today charge $200 for a procedure that involves no more than 4 hours, and only $400 for one that involves 15 hours (frequently because these are the "going rates" established or accepted by insurance companies), whereas we have seen, in the examples cited, that these fees should be $130 and $500 respectively. As an interim step, in such a situation, we would probably propose the reduction of the $200 fee to $175 and an increase in the $400 to $450. (It will be noted that, in our example, this would make little or no difference incomewise.) Later, as the physician's education of patients becomes more effective, it may be possible to bring these fees more closely into proper relationship.

Recently we were asked why the revision of a fee schedule to conform to those published by insurance companies would not provide a "fair" schedule, since the insurance fees were "actuarially based." We pointed out that, while the insurance company actuarially arrived at the premiums that would have to be charged by relating fees to incidence, the approved fees were more likely to reflect an average of prevailing fees already being charged across the country than fees that they had themselves selected by relating service to time. These "prevailing fees," which form the basis of insurance schedules, have thus evolved by the same arbitrary method producing the discrepancies to which we have previously referred. We must all recognize that, theoretically sound and certain as the hourly-rate basis is, it cannot work out perfectly in practice because we are dealing with unpredictable factors both in the physician and the patient. The intended gross income will be the ideal that the physician strives for and reasonably approaches. Its effective attainment will be limited by allowances he makes to truly deserving patients, professional courtesy discounts, and, on the reverse side of the ledger, "contingency fees," which he adds to his basic fee, despite the fact that average time already has made some allowance for the abuses that call for them. Such fees are proportionally charged to patients who, for one reason or another, make unusual and unreasonable demands on the physician's time. (Allowances, professional courtesy, and contingency fees will be discussed in the next article in this series.) Other modifying influences are the rounding-off of fees, which in the surgical example produced a deficit of $280 below the intended gross income, and also the fact that performance cannot be expected to work out exactly as it is projected.

The physician's intended income calculations should therefore be protected on the upward side. Part of this protection will come, as we have already seen, from the fact that he will likely be forced by the demands of emergency services to work longer hours than he desires. A second means of securing his position is by the device of ignoring in his basic calculations separately charged office visits, except when they are the mainstay of the practice and cannot be reduced. There should be a charge for all such office visits as cannot be covered by an inclusive fee, and this charge will be based on the hourly rate, but the hourly rate will be arrived at by excluding office visits (especially where the point system approach is used) from the calculations. Thus the income derived from office visits will be an override that will compensate for unavoidable leaks in other areas. (When the "productive hours" basis is used, office visits are excluded by proportionally reducing the daily number of productive hours.) Finally, the hourly-rate fee schedule arrived at must never be regarded as immutable. Periodically, on the basis of additional experience, the physician should refigure his "average time per service," and if there is marked variation from the figures used in the original calculations, the particular fee should be recalculated and the fee adjusted accordingly.

ADVANTAGES OF THE HOURLY-RATE BASIS

While we have conceded that there may have to be some deviation from the ideal and accurately calculated fees set for the above, the greatest advantage of the hourly-rate basis is the sense of security that it gives the physician and his staff in presenting fees to patients. They know that the fee presented has been fairly determined and is therefore fair both to the physician and his patient. The lack of assurance with which most physicians present their fees today, and the fact that from time to time (and usually for the wrong patients) they vary the fee schedule established in their offices on an arbitrary basis, springs in large measure from their subconscious doubts of the validity of the fees they are presenting and of the basis on which their fee schedule was initially developed. When a physician knows that the fee he is presenting is proper to the service he is rendering, he knows also that he merely has to present it—that he does not have at the same time to justify a figure that he is not sure he can rationally justify. In other words, he can present it with full assurance as to its propriety. If there then develops any valid reason for departing from his established schedule, he can do so on a sensible and rational basis, knowing exactly what he is doing and also what effect it will have on his own earnings.

1955 Franklin St., San Francisco (9) (Mr. Porterfield).

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Malpractice: Liability of Industry for Negligence of Company Physician.—The plaintiff sued the Scullin Steel Company, his former employer, for damages for injuries allegedly caused by the negligence of its employees, particularly its company physician. From a judgment for the defendant, the plaintiff appealed to the Supreme Court of Missouri.

When the plaintiff entered the defendant's employment in February, 1943, the company physician, Dr. Leo Will, gave him a physical examination that showed that the plaintiff was in good physical condition except for a heart lesion. An x-ray revealed a slight enlargement of the heart, caused by the constant pulling up of the muscle. Dr. Will told the plaintiff that he heard a murmur in his heart, but he approved him for manual labor. Except for several short periods of time, the plaintiff served as an employee of the defendant company until February, 1949. During this time, the plaintiff worked in the core room and handled cores weighing from 25 to 175 lb. In July, 1948, he fell against a core stand and experienced a pain in his chest or heart. He saw Dr. Will about the condition, but Dr. Will merely examined him, had an x-ray taken, prescribed medicine, and advised him to take things easy. Later that year the plaintiff was examined and treated at a medical center and learned for the first time that he had been suffering from cardiovascular syphilis. In February of 1949, the plaintiff was told by Dr. Will to go home and to obtain the care of a private physician. In March he became the patient of a Dr. Melvin Goldman, who treated him through 1951 for syphilis. An electrocardiogram taken in March, 1949, showed the condition of the plaintiff to be normal; one taken in June, 1950, showed some enlargement of the left ventricle; and one taken in September, 1951, showed some moist rales, indicating moisture in the lung. A complete examination on Sept. 14, 1951, also showed a questionable edema of the ankle. All x-rays taken by Dr. Goldman showed essentially the same condition as those taken by Dr Will.

The theory of the plaintiff's suit was that the defendant, through its employees, had ordered him to do work that he was not physically capable of doing; that the defendant knew or had reason to know of his disability; and that the doing of manual labor for the defendant had aggravated his heart condition and shortened his life expectancy. Dr. Will described the heart condition that he discovered before the plaintiff commenced to work for the defendant as a "sea gull" murmur. He stated that he had never heard such a murmur before and that he could not tell which heart valve was involved but that at no time during the plaintiff's employment did he find signs of decompensation. Dr. Will explained that he approved prospective employees for manual labor, even though they had heart murmurs, unless there were signs of decompensation, because in his opinion a person with a heart murmur would not increase decompensation any more by manual labor than he would by remaining inactive. Furthermore, the plaintiff never complained of trouble with his heart until after the accident in 1948, and the examination given at that time still did not show signs of decompensation. Until the time of the trial Dr. Will was unaware that the plaintiff had syphilis. Dr. Goldman, testifying for the plaintiff, substantiated Dr. Will's testimony of the plaintiff's condition while employed by the defendant and disclosed that the accident contributed to and aggravated his heart condition, precipitating decompensation and possibly thrombosis.

The Supreme Court first pointed out that the instant case is not like the situation where an employer has been warned that his employee has a disability and can not do certain types of work but nevertheless orders the employee to do the forbidden work. Rather, the instant case presents a question of whether the company physician acted negligently in deciding that the plaintiff could do manual labor without it resulting in physical harm to the plaintiff. The defendant could not be liable unless the physician himself was liable. There was no question, said the court, as to Dr. Will having the requisite skill and knowledge to perform the tasks required of him as the company physician. The court further pointed out that no witness, expert or otherwise, testified about Dr. Will not acting according to the accepted standards of practice in that community in either examining the plaintiff or recommending him for manual labor. Dr. Goldman merely testified that in his opinion he would not have so recommended the plaintiff. The Supreme Court held that, on the basis of such testimony, one could merely conclude that Dr. Will had a medical opinion that differed from that of Dr. Goldman. A difference of medical opinions does not indicate that one of the physicians acted negligently, however. Accordingly the court affirmed the judgment in favor of the defendant company. *Brown v. Scullin Steel Co., 260 S. W. (2d) 513 (Mo., 1953).*

Childbirth: Liability for Prenatal Injuries.—The plaintiff, a minor, sued for prenatal injuries caused by the defendant's alleged negligence. From an order of the trial court, the defendant appealed to the supreme court, appellate division, third division, New York. Prior to his birth, and when his mother was in the third month of her pregnancy, the plaintiff was injured when the defendant struck and knocked down his mother while driving an automobile. As a consequence the plaintiff was born weakened, debilitated, and otherwise physically handicapped. The defendant maintained that a person could not recover for prenatal injuries that were inflicted before such person had reached the stage of viability.

In 1951 the Court of Appeals held that a person could recover for prenatal injuries inflicted during the ninth month of the mother's pregnancy. That case dealt with injuries to an unborn but viable child, and the appellate division held that the same rule should apply even though the unborn child was injured prior to the ninth month. In determining when a person becomes capable of acquiring legal rights, the time of conception, said the court, was more important than the time of viability. At the moment of conception the fetus becomes an entity distinct from the mother and may be physically separated as a distinct entity, and the fact that a nonviable child would not survive if separated should not be used as a basis for denying the child certain rights that normally accrue to every individual person. In conclusion, the court held that if the child, born after an injury sustained at any period of his prenatal life, can prove the effect on him of the tort, he makes out a right to recover. Hence, the supreme court affirmed the decision of the lower court for the plaintiff-infant. *Kelly v. Gregory, 125 N. Y. S. (2d) 696 (N. Y., 1953).*

Workmen's Compensation Acts: Injury Without Loss of Earning Power; Compensability.—In a claim for an award under the Workmen's Compensation Act, the industrial commission found in favor of the employer. The claimant then appealed to the Supreme Court of Oklahoma. While working at a mine owned by his employer, the claimant inhaled fumes from a chemical preparation containing xanthate, which was used in processing materials at the mine. The inhalation caused the claimant to lose his sense of smell and partially his sense of taste. An award was denied on the grounds that the claimant had suffered neither an accidental injury nor any loss of wage-earning capacity.

The Supreme Court held that the inhalation of fumes by an employee while acting within the scope of his employment constitutes an accidental injury within the meaning of the workmen's compensation law. It also held that it was immaterial to the right to recover that the claimant suffered no loss of earning capacity. The compensation law, said the Supreme Court, provides for a set rate of compensation to be paid for permanent disabilities, even though they do not effect a loss of the employee's earning capacity. Accordingly, the Court reversed the denial of compensation and remanded the case for further proceedings. *Ford v. Nellie B. Mining Co., 255 P. (2d) 504 (Okla., 1953).*

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Successful Short-Term Therapy of Streptococcal Endocarditis with Penicillin and Streptomycin. B. Hall, H. F. Dowling and W. Kellow. Am. J. M. Sc. **230:**73-81 (July) 1955 [Philadelphia].

During the past three years Hall and associates treated 15 patients with endocarditis caused by penicillin-sensitive alpha and gamma Streptococcus organisms with short-term penicillin and streptomycin therapy. In each case the diagnosis was established by 2 to 11 (average, 5) positive blood cultures. In 10 cases, an alpha Streptococcus was isolated, while a gamma Streptococcus was found in the remaining five. In all except two of the patients the organisms were sensitive to 0.1 unit of penicillin or less per cubic centimeter. In 11 of the 15 cases streptomycin sensitivity of the causative organism was determined, and it ranged from 0.2 to 50 mcg. per cubic centimeter. In 11 patients the underlying heart disease was of rheumatic origin. In three patients, diagnoses were calcific aortic stenosis, syphilitic aortic insufficiency, and tetralogy of Fallot, respectively. One patient may have had a normal heart prior to the onset of bacterial endocarditis. Antibiotic treatment was started as soon as the results of blood cultures became known. In some instances, digitalis, mercurial diuretics, and blood transfusions were also employed. The usual plan of antibiotic treatment consisted of the intramuscular injection of 600,000 units of aqueous procaine penicillin G at six hour intervals for 10 days, for a total dose of 24 million units. Streptomycin, or, more commonly, a mixture of equal parts of streptomycin and dihydrostreptomycin, was given concurrently in a dose of 0.5 gm. at 6 hour intervals for 5 days, and 0.5 gm. at 12 hour intervals for another 5 days, for a total of 15 gm. in 10 days. In a few of the patients treatment was continued for 13 or 17 days. Two of the patients died while hospitalized for treatment, and a third patient continued to be febrile and was successfully re-treated with larger doses of penicillin alone for six weeks. The 12 remaining patients were successfully treated by short-term combined antibiotic therapy. The authors show that the short-term therapy is the more desirable, since a regimen of four to six weeks of therapy, such as has been found necessary in the past, has many disadvantages.

Myocardial Infarction in Younger Age Groups. L. V. McVay Jr. J. M. A. Alabama **25:**1-8 (July) 1955 [Montgomery, Ala.].

Age is generally regarded as an important factor in myocardial infarction, but those who have witnessed many autopsies are aware that coronary atherosclerosis may occur in relatively young persons. This was strikingly illustrated by Enos, who demonstrated that 77% of American soldiers killed in Korea had coronary atheromas. This report is concerned with 34 patients with myocardial infarction, who were observed at the Maxwell Air Force Base Hospital, during a four year study. There were 17 aged 40 or less, and 17 were 41 or over. That not a single coronary occlusion occurred in a Negro patient is regarded as indicative of a racial factor. Other factors that seemed to play a part in the pathogenesis of coronary occlusion were: a familial history, obesity, excessive use of tobacco and alcohol, as well as unusually strenuous activity. In Alab myocardial infarction seems to occur more commonly du the warm season. Myocardial infarction is often overlooke young persons, chiefly because it is regarded as uncommon because the clinical picture may be atypical. Serial electrocar grams, sedimentation rates, and white blood cell counts frequently required to establish the diagnosis definitely. laboratory procedures, however, can substitute for clin observation and alertness.

Anticoagulant Treatment in Myocardial Infarction. J. He mann. Harefuah **48:**190-192 (May 1) 1955 (In Hebrew, Eng Abstract) [Jerusalem-Tel Aviv, Israel].

On the basis of observations in the treatment of 231 pati with myocardial infarction, the author advises the use of bi droxycoumarin (Dicumarol), since it prevents one of the important and often fatal complications. The mortality in of the cases treated with bishydroxycoumarin was 9%, exclu patients who died during the first three days after admiss In only two of the patients treated with bishydroxycoum did thromboembolic complications occur. They appeare one patient three days and in the other 10 days after stop treatment with bishydroxycoumarin. Of the 51 patients treated with anticoagulants, 18% experienced thromboem complications. The author thinks that the use of anticoagul in patients with myocardial infarction was partially respon for the low mortality rate observed and not only thr prevention of thromboembolic complications. Bishydroxy marin should be continued despite fluctuations in the proth bin time, which may occur during treatment, because thron embolic complications did not occur more often in cases great fluctuations in the prothrombin time. Only a small nun of other complications occurred in patients with myocardia farction in the course of the treatment with bishydroxycoum

Osler's Endocarditis Lenta Due to Streptococcus Resistan Other Antibiotics, Cured by Erythromycin. J. Lambert Lamalle and R. Lievens. Acta clin. belg. **10:**62-68 (Jan.- 1955 (In French) [Brussels, Belgium].

A case of subacute bacterial endocarditis (endocarditis le is reported. The patient's blood culture was consistently neg for a month, after which period nonhemolytic streptococci isolated that were resistant to penicillin, streptomycin, ox racycline, and chloramphenicol; slightly sensitive to chlo racycline; and definitely sensitive to erythromycin. Treatn with combined penicillin and streptomycin in massive d and then with oxytetracycline given intravenously, both before the hemogram became positive, was a complete ure. Clinical cure was obtained by the administration erythromycin alone; the dosage was 2 gm. a day for a m with progressively decreasing doses during a second mo No side-effects were observed. There has been no recurr in a follow-up period of five months. Thus it is seen that eryt mycin alone can be effective in the treatment of suba bacterial endocarditis of Osler. This knowledge gains gre value in the light of the growing resistance of the patho to various antibiotics.

Results with a Combination of Rauwolfia and Adrene Blockade in the Treatment of Hypertension. J. H. Mo W. Hughes, E. Dennis and others. Am. J. M. Sc. 230:3 (July) 1955 [Philadelphia].

Hypotensive effects of Rauwolfia plus phenoxybenza (Dibenzyline), and of these two drugs in combination protoveratrine were compared in 47 patients with var degrees of hypertension. A significant hypotensive respons mean blood pressure reduction of 20 mm. Hg or more,

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achieved in 23 of 28 patients receiving the combination of Rauwolfia, protoveratrine, and phenoxybenzamine. Of 19 patients receiving only Rauwolfia plus phenoxybenzamine, 14 experienced significant blood pressure response, but this latter group of patients had slightly more severe hypertension, in that all had previously been unresponsive to Rauwolfia alone. Side-effects of all regimens (including Rauwolfia alone) were seen in nearly all patients. Chief side-effects of the Rauwolfia-protoveratrine - phenoxybenzamine combination consisted of nasal congestion, sedation and fatigue, increased appetite, dizziness, and bradycardia. Orthostatic tachycardia, a major side-effect of phenoxybenzamine alone, was seen infrequently when the drug was used in this combination. The dose requirement of phenoxybenzamine was greatly reduced as compared with that required when this agent was used alone. Results indicate that the combination of phenoxybenzamine and Rauwolfia, with or without protoveratrine, may prove generally useful in the treatment of all degrees of hypertension. Rauwolfia blocks vasoconstrictor impulses centrally, whereas phenoxybenzamine blocks vasoconstrictor impulses peripherally; together these effects make this a potent combination for reducing the blood pressure in patients with hypertension.

Malignant Hypertension: Clinical Study. M. Plaza de los Reyes, R. Gómez and L. Szpirman. Rev. méd. Chile 83:234-240 (April) 1955 (In Spanish) [Santiago, Chile].

In the Hospital Clínico of Santiago, Chile, 26 patients with malignant hypertension were observed. There were 8 female patients and 18 male. Most of the patients were between the ages of 20 and 50 years. All of the patients were in a poor general state of health with high arterial hypertension, a diastolic pressure above 130 mm. Hg, hypertensive encephalopathy, and retinopathy. Arterial hypertension had lasted for more than two years in 15 patients. The disease proved to be of nephrogenic origin in half the patients and either essential or of unknown origin in the remaining. Chronic pyelonephritis was the cause in seven women and in three men, and chronic glomerulonephritis in three men. The symptoms of hypertensive encephalopathy were headache in all patients and a great diminution of vision in 11 patients. Other disorders of vision and hearing, and vomiting and insomnia were observed in the remaining patients. The average systolic-diastolic pressures for the group were 239/153 mm. Hg respectively. A diastolic pressure of 150 mm. Hg or more was observed in 19 patients in whom the renal plasma flow was greatly diminished. A histopathological study of the kidney was made in six cases by biopsy during an operation and in four cases after autopsy. The lesions were those of malignant nephrosclerosis in four cases, nephrosclerosis and chronic pyelonephritis in four, and chronic extensive glomerulonephritis and benign nephrosclerosis in a case each. The authors conclude that malignant hypertension develops in two stages. In the early stage hypertension increases as a result of functional renal disorders that can be controlled by medical or surgical treatment, causing hypertension to reverse to normal or nearly normal figures. The second stage consists of progressive increase of diastolic hypertension that produces acute arteriolar lesions of malignant nephrosclerosis, cerebral edema, and hypertensive encephalopathy. The disease can be either primary and of rapid course and poor prognosis or secondary to nephrogenic hypertension.

Brill-Symmers Disease with Splenohepatorectal Localization. B. Wissmer, H. Dubois-Ferrière, E. Naz and P. Wettstein. Arch. mal. app. digest. 44:273-290 (March) 1955 (In French) [Paris, France].

A case of giant follicular lymphoma (Brill-Symmers disease) with unusual localization limited to the spleen, liver, and rectum was seen in a 56-year-old woman. When first seen by the authors, she was suffering from severe bloody diarrhea, had ascites, was cachectic, and had been given a rapidly fatal prognosis. The true nature of her disease was not discovered until the spleen was examined microscopically after splenectomy, although she had undergone a battery of clinical and laboratory tests. The combination of splenectomy and roentgen irradiation of the liver and rectum restored the patient to excellent health. This case is a good illustration of the confusion arising when giant follicular lymphoma remains undiagnosed because it is not envisaged as a possibility. The diagnosis was especially difficult here because there was no adenopathy. Malignant giant follicular lymphoma is a fairly rare disease; there are about 200 cases of it reported in the literature. It occurs most commonly in persons between 40 and 60 years of age. Its characteristic symptoms are generalized adenopathy and splenic involvement with splenomegaly. There are no general signs of the disease, and the blood picture is normal. Some forms can be localized to a single organ. The disease evolves slowly toward generalization and sarcomatous transformation; occasionally lymphocytic leukemia or Hodgkin's disease is the end-result. The increase in size and number of the lymphatic follicles can be seen macroscopically. The diagnosis can be made from histological data only. Clinical differential diagnosis must be made from lymphoid leukosis, Hodgkin's disease, chronic inflammatory adenitis, Banti's disease, and lymphosarcoma, among others. Since the disease is highly radiosensitive, remissions can be induced that may last five years or longer. Actinomycin also appears to be of value in this therapy.

Sarcoidosis: Uveoparotid Fever. V. Contreras Vilu and R. Valdivieso D. Rev. méd. Chile 83:250-252 (April) 1955 (In Spanish) [Santiago, Chile].

The subject of this report, a man 38 years old, was normal up to the appearance of the typical symptoms of uveoparotid fever, including unilateral facial paralysis and great damage to the eyes. During the first attack the treatment consisted of sulfadiazine given orally up to a total dose of 17 gm. and local application of cortisone solution. Two recurrences followed at intervals of one year. During the second recurrence a large tumor developed in the right parotid gland that was removed under the diagnosis of a mixed parotid tumor. Histological study showed it to be tuberculous lymphadenitis. One year later a large tumor developed in the left parotid gland. Biopsy showed tuberculosis. Examination for bacilli and the tuberculin tests were negative. Roentgen examination of the chest showed bilateral chronic pneumonia of the interstitial type. The tests for sarcoidosis were positive. A review of the histological preparations changed the diagnosis from tuberculosis to sarcoidosis. The treatment consisted of cortisone administered in a dose of 150 mg. and maintenance doses of 50 mg. each, to a total dose of 3 gm. The general condition of the patient improved, and the size of the left parotid gland greatly regressed. The roentgen aspect of the lung and the ocular lesions did not change. Loss of vision was almost complete when the patient was discharged. The authors direct attention to the importance of early treatment with corticotropin and cortisone. These drugs prevent the progress of early ocular lesions, cause improvement in the general state of health, and stimulate spontaneous remission of the disease. The results are transient.

Medical and Social Aspects of the Treatment of Rheumatoid Arthritis with Special Reference to Factors Affecting Prognosis. J. J. R. Duthie, M. Thompson, M. M. Weir and W. B. Fletcher. Ann. Rheumat. Dis. 14:133-149 (June) 1955 [London, England].

The objectives of the reported studies were to assess the immediate results of treatment in hospital on patients with rheumatoid arthritis; to ascertain how long improvement could be maintained after discharge; to determine the relationship between clinical progress and changes in social and economic status; and to obtain information about factors that might help to predict the response to treatment of individual patients. The original group consisted of 307 patients admitted to hospital between June, 1948, and July, 1951. Of this group 282 were available for assessment at the last follow-up examination. It was found that the admission to hospital of patients with rheumatoid arthritis is followed in the majority of cases by a substantial improvement in functional capacity and a significant decrease in the activity of the disease. Improvement is well maintained after discharge, although a more prolonged follow-up is required before it can be claimed that the natural course of the disease has been significantly altered. A close relationship exists between improvement in the medical sense and betterment of social and economic circumstances. When advice and help are available, increase in functional capacity leads to increased efficiency at home and at work. In predicting the immediate response to treatment and the subsequent course of the disease, the most important single factor appears to be the duration of symptoms before admission to hospital. Patients admitted within one year of onset respond very satisfactorily to the basic regime of treatment, and the majority continue to improve after discharge. However, results at this stage of the disease may be favorably influenced by the admission of a proportion of patients in whom the disease is destined to run a relatively benign course. An acute onset followed by a rapidly progressive course in the early stages may indicate a rather benign form of the disease. The erythrocyte sedimentation rate and the disease activity on admission have little bearing on prognosis. Mild or moderate anemia on admission is not of grave significance, but, when anemia is severe, response to treatment is less satisfactory. Social and medical supervision may play a part in consolidating the benefits of hospital treatment. The medical social worker occupies a key position in the organization of long-term care and follow-up. The results that follow the conservative forms of treatment in hospital compare favorably with those claimed for other forms of treatment, such as the administration of gold or cortisone.

Undiagnosed Lung Diseases: A Survey of One Hundred Consecutive Supraclavicular Biopsies. E. F. Skinner and J. R. Hall. Memphis M. J. 30:78-80 (July) 1955 [Memphis, Tenn.].

Skinner and Hall resorted to supraclavicular biopsy in 100 patients in whom pulmonary diseases could not be diagnosed with the usual diagnostic procedures, such as skin tests for tuberculosis and histoplasmosis, bronchoscopy and bronchial washings, bronchograms, multiple sputum studies for tubercle bacilli and tumor cells and fungi, pleural fluid studies when pleural fluid was present, bone marrow examinations, fluoroscopy, x-rays of the chest in various projections, and even in a few cases lung biopsy or biopsy of the chest wall and axillary nodes. The surgical approach to supraclavicular biopsy was essentially the same as that used in a phrenic nerve operation. The fat pad lying on the scalenus anterior muscle is removed, together with its contained lymph nodes. By pulling on this fat pad, lymph nodes can be removed from beneath the clavicle and from the superior mediastinum. A supraclavicular node biopsy is essentially a superior mediastinal lymph node biopsy. All of the right lung and the left lower lobe and a portion of the left upper lobe usually drain into the right supraclavicular nodes, and the left supraclavicular nodes drain chiefly the left upper lobe, excluding part of the lingula. This information is useful in deciding on which side to do the supraclavicular node biopsy. Positive biopsy reports were obtained in 43 and negative ones in 41 of the 100 patients. The remaining 16 patients also had negative biopsies, but in these a positive result could not be expected, since they had medical diseases such as bronchiectasis, pneumonia, and so on. No fatality resulted in the 100 supraclavicular biopsies, and there was little morbidity. Hospitalization usually averaged 48 hours. In many of the cancer patients a positive supraclavicular biopsy saved the patient from major surgery, as such distant metastases made surgical cure highly improbable. Supraclavicular biopsy should be performed irrespective of whether or not nodes are palpable in the neck. There were 18 among the 100 patients in whom no nodes were palpable and yet the supraclavicular biopsy yielded a positive report. In addition to pathological examination the resected nodes should also be studied bacteriologically for tubercle bacilli and fungi.

Prognosis of Infantile Tuberculosis. P. Fornara. Minerva med. 46:1027-1039 (April 12) 1955 (In Italian) [Turin, Italy].

The prognosis of infantile tuberculosis, which was almost always fatal in the preantibiotic era, has been revolutionized by the discovery of antibiotics. With chemotherapy and antibiotic therapy, primary tuberculosis can today have a favorable course. This was proved by a comparative study of two episodes of contagion that were observed in the preantibiotic and antibiotic eras respectively. The first occurred in a Novara Foundling Hospital in 1928, and the death rate was 73.82%; the second occurred in a kindergarten in the province of Milan in 1951, and the death rate was 3.7%. Generally, if a child is still alive one month after his removal from the source of contagion, his survival tends to become definitive; if he does not die within one and one-half years after the first signs of the infection, it is almost certain that he will not die of primary tuberculosis. All children with a primary infection should be watched carefully and made to follow special precautions, especially during the first 4 to 5 months, and for at least 18 months from the onset of the condition. Chemotherapy combined with antibiotic therapy gives good results. Infants under 6 months of age should be given streptomycin, *p*-aminosalicylic acid, and isoniazid; older children should be given isoniazid and *p*-aminosalicylic acid. With these therapies, forms that in the preantibiotic era would have progressed toward caseation and massive cavitation are arrested and healed. Prognosis of the local complications of primary tuberculosis depends on the time in which therapy is started and on the patient's degree of resistance. If this i satisfactory, primary tuberculosis and its local complication are cured, otherwise the tuberculous lesions tend to develop into a progressive type of pulmonary tuberculosis. The prognosi of tuberculous meningitis and miliary tuberculosis, which wa fatal in all cases, has also been favorably influenced by th discovery of antibiotics, and especially of streptomycin. Th author has obtained good results in tuberculous meningitis with streptomycin given intrathecally and intramuscularly combined with isoniazid given intramuscularly and orally and *p*-amino salicylic acid given orally. He rejects treatment of tuberculou meningitis with isoniazid alone. He reports good results i patients with miliary tuberculosis to whom he administere streptomycin at first combined with sulfone, then with *p*-amino salicylic acid and thiosemicarbazone, and later with isoniazid

Prognosis of Hepatic Cirrhosis. M. Coppo. Minerva me 46:989-992 (April 12) 1955 (In Italian) [Turin, Italy].

The prognosis of hepatic cirrhosis is fatal (except for a fe rare cases), the main feature of the condition being atroph of the liver as a specific and functioning tissue. The disease, an therefore its prognosis, has not been substantially modified b modern treatment; this merely slows down the progression of th condition and checks some of its symptoms and their cons quences. Despite present day therapy, 70% of patients wit cirrhosis die within five years of its clinical diagnosis. Th prognosis depends on an exact diagnosis and on the phas reached by the cirrhosis. Ascites is a grave sign, and when is the result of the progressing of the disease the prognosis poor. Jaundice accelerates the progression of the cirrhosi Biopsy, which is a valuable diagnostic means, is of little us for the prognosis because it is limited to one particular are of the liver, whereas the prognosis is based on the conditio of the entire organ and on its regenerative power. The mai point of the prognosis lies within the liver itself, namely, o the cirrhotic-damage/liver-resistance ratio. The fatal prognos of this condition can be modified by (1) prophylactically pro tecting the liver from all injuries, because any hepatic impai ment may become the starting point of the condition; (2) mai taining or stimulating the regenerative powers of the liver an the rebuilding of the impaired parenchyma; and (3) trying t reach an early diagnosis of the cirrhotic damage so that it may b either kept within a restricted area or eliminated in the initi phase, the only time in which this is possible.

Carcinoid in Small Intestine: Cases with Metastases to Live Stenosis of Tricuspid, and Unusual Form of Cyanosis: Ne Syndrome. K. H. Olesen. Ugesk. læger **117**:635-639 (May 19 1955 (In Danish) [Copenhagen, Denmark].

A peculiar triad has received increasing attention durin recent years. In the first of the two cases described all thre components were present: carcinoid in the small intestine wit hepatic metastases, tricuspid stenosis and pulmonary stenosis without septum defects, and unusual cyanosis. In the second case there were two components, carcinoid with hepatic metastases and tricuspid insufficiency. The origin of the cardiac changes in the syndrome is uncertain. An early cutaneous symptom is the paroxysmal light to dark flush, later alternating with dark cyanotic spots or intense brick-red surfaces. The changes as a rule begin in the face and on the throat and extend to the trunk and extremities. The carcinoid is thought to be primary and the cutaneous changes are explained as secondary and due to the vasoactive substance enteramin, or serotonin, produced in the carcinoid, and the tricuspid defects, also secondary, are attributed to the protracted influence of enteramin on the cardiovascular system (Waldenström and co-workers).

Malignant Carcinoid of Small Intestine with Pulmonary Stenosis: Tumor Producing Serotonin? K. D. Carlsen and T. Søndergaard. Ugesk. læger 117:639-641 (May 19) 1955 (In Danish) [Copenhagen, Denmark].

A case is reported of malignant carcinoid of the small intestine with pulmonary stenosis and reddish-blue cyanosis in a man, aged 65. The hypothesis is that the release of large amounts of serotonin, or enteramin, from the carcinoid tumor can lead to vascular changes peripherally and in the pulmonary circulation. If vasoactive serotonin is excreted by the carcinoid tumors, establishment of the substance in the blood and urine should be a valuable diagnostic aid in suspected malignant carcinoid.

SURGERY

Surgery of Hypertension. G. H. Yeager. South. M. J. 48:635-639 (June) 1955 [Birmingham, Ala.].

A group at the author's clinic made an attempt to obtain more information on the value of adrenalectomy in hypertension. The patients studied were selected on the basis of the following criteria: A rapidly progressive hypertensive state, papilledema with hemorrhagic exudates, and the absence of any demonstrable primary etiology for the hypertension. For the purpose of comparison, the patients were divided into three groups. The first contained six patients who died during the initial period of observation, before any therapeutic procedure could be undertaken. The second group contained five patients who were subjected to some form of adrenal surgery and all of these died. The third group contained six patients who were treated by the combined procedure of sympathectomy and total adrenalectomy. Observations on these groups suggested that better control of blood pressure and more satisfactory clinical results could probably be obtained by combining thoracolumbar sympathectomy with adrenalectomy. Better results might possibly have been achieved by rejecting patients with advanced renal disease, and by avoiding bilateral single stage operations. The author was unable to demonstrate reversibility of severe renal disease associated with hypertension. Failure to observe replacement requirements after adrenalectomy in any form of stress may lead to the development of a rapidly fatal adrenal insufficiency, if adequate substitutive treatment is delayed. With the development of more effective drugs in the treatment of hypertension, the surgical management of any phase of this disease is becoming increasingly rare. Potent ganglionic blocking agents give promise of such a degree of effectiveness that it is conceivable that an era is being approached when surgical intervention, even in the late stages of hypertension, will be outmoded.

Surgical Treatment of Constrictive Pericarditis. W. Ying-K'ai, C. T'ien-Huei, H. Kuo-Chun and others. Chinese M. J. 73:122-132 (March-April) 1955 (In English) [Peking, China].

The authors present experiences in 73 pericardiectomies carried out in 70 patients with constrictive pericarditis between 1948 and 1954. The patients ranged in age from 5 to 53 years, and all but 13 were males. Nearly three-fourths were in the second and third decades of life. It is generally accepted that constrictive pericarditis is usually tuberculous. In 35 cases, the resected specimens proved to be tuberculous. It seems very likely that in most of the other cases the tuberculous lesion had healed and only fibrous tissue was left behind as a result of the long duration of the disease. There were 10 postoperative deaths during hospitalization; 39 patients have been followed up for periods ranging from six months to six years; 26 of these 39 were cured, and 5 others were improved. There were six late deaths. An analysis of the fatal and unimproved cases shows that most of these were chronic cases in which there were either marked impairments in cardiac and hepatic functions or technical shortcomings in the operation. Improvements in timing the operation, in the preparation of patients for operation, and in the operative technique will give better results in the surgical treatment of constrictive pericarditis. During the early stage of tuberculous pericarditis, when the chief disturbance of cardiac function is due to pericardial effusion, treatment should consist of conservative measures. Operation is done when pericardial constriction develops. The resection of pericardium should be adequate, including the pericardium over the anterior aspects and the lateral borders of both ventricles. It is not absolutely necessary to resect the pericardium over the auricles. The advantages and disadvantages of the median sternotomy incision and the left parasternal incision are discussed. Treatment with antituberculous drugs is advisable before and after pericardiectomy. Postoperative drug therapy should be continued longer in patients with active tuberculous infection.

Use of Active Vegetable Substances in Preparing Patients with Thyrotoxicosis or with Basedow's Exophthalmic Goiter for Surgery. H. Sittig. München. med. Wchnschr. 97:826-832 (June 24) 1955 (In German) [Munich, Germany].

When it was observed that, despite Plummer's preparatory iodine treatment, severe thyrotoxic crisis often resulted after operations on the thyroid, the author decided to refrain from the preoperative use of iodine. It is difficult to ascertain how individual patients will react to (Lugol's) strong iodine solution, since response may range from refractoriness to hypersensitivity. Instead of strong iodine solution, the author used standardized extracts of Lycopus virginicus. (Lycopus is a genus of nonaromatic mints, known as the bugle-weeds.) Such extracts were used in 91 patients, 80 with moderately severe and 11 with severe thyrotoxicosis, and in 10 patients with Basedow's exophthalmic goiter. All were rendered suitable for surgical treatment. The time required for preliminary treatment increased with the severity of the patient's clinical status, and often was considerably longer than that required for Plummer's iodine therapy. The use of the Lycopus extract had the advantage, however, that the postoperative thyrotoxic crisis was very mild. As regards the technique of the operation, the friability of the thyroid was not increased as it is after preparatory treatment with the thyrostatic drugs. The condition of the thyroid after treatment with Lycopus extract was about the same as after iodine therapy. Furthermore the operation can be postponed longer and is not as definitely determined by the transition point as is the case with Plummer's preparatory iodine treatment. It was noted also that the patients were much more rapidly restored to normal and were able to resume their occupation earlier after operation than was the case in those who received Plummer's iodine preparation.

Resection of Lung for Pulmonary Tuberculosis. H. Chia-Ssu, S. Mei-Hsing, C. Chung-Hsi and W. Teh-Hsing. Chinese M. J. 73:112-121 (March-April) 1955 (In English) [Peking, China].

From 1947 to the end of June, 1954, a total of 313 pulmonary resections were done on 312 patients with pulmonary tuberculosis at the Clinic of Thoracic Surgery of the Shanghai First Medical College. The series included 89 pneumonectomies, 144 unilobar lobectomies, 8 bilobar lobectomies, 20 segmentectomies, 14 wedge resections, 21 multiple resections, and 17 pleuropneumonectomies and pleurolobectomies. The indications for operation were considered as absolute in 231 cases and relative in 82 cases. Tuberculous spread or exacerbation in the remaining lung occurred early or late in the postoperative period in 25 patients. Drainage of bacilli-laden sputum to the contralateral lung seems to be the principal factor responsible for this complication. Tuberculous and nontuberculous empyema occurred in 20 cases. It seems that postoperative hemothorax is chiefly responsible for the production of nontuberculous empyema and that rupture of cavity at the time of operation is the main factor responsible for the production of tuberculous empyema. There were 23 deaths; the mortality for pneumonectomy was 10.1% and for unilobar lobectomy 5.6%, and no deaths resulted from segmentectomy and wedge resection. Of the 20 early deaths, 7 resulted from shock or cardiorespiratory failure during or within 24 hours after operation. Bilateral cervical vagosympathetic block seemed to prevent such fatalities. Another common cause of fatality was empyema. Death resulted only in patients in whom the indication for surgical treatment was absolute. The status of 252 of the 263 patients who could be followed up to date is satisfactory.

Pneumonectomy, Lobectomy, and Segmental Resection in Treatment of Pulmonary Tuberculosis. E. J. Zerbini, B. J. Fleury de Oliveira and R. Monteiro de Arruda. Rev. paul. med. **46:**325-388 (May) 1955 (In Portuguese) [São Paulo, Brazil].

Between 1946 and 1954, 255 patients with pulmonary tuberculosis were treated with one or more pulmonary resections. Males and females were about equal in number. Most of the patients were between 30 and 40 years of age. Bacilli were present in the sputum of all patients but 18. The patients were observed in three groups of 27, 76, and 152, as they had the operation during the first, second, or third three-year period of this study. Special reference is made to 152 patients who had the operation between 1951 and 1954. Indications for pulmonary resection were: unilateral diffuse tuberculosis (the "destroyed lung") in 14 cases; tuberculoma in 15; atelactasis, fibrosis, and bronchiectasis in 11; tuberculosis of either the lower or the middle lobe in 9; large cavities of upper lobe with bronchial tuberculosis in 17 cases; residual lesion after pneumothorax in 10 cases and after thoracoplasty in 15 cases; tuberculosis in only a lobe or in only a segment in 37 cases; and lesions of the upper lobe associated with lesions of either the lower or the middle lobe in 7 cases. Predominantly exudative tuberculosis was not observed in this group. There were 35 patients subjected to a pneumonectomy; 68 to a lobectomy; 38 to segmental resection; and 11 to a lobectomy combined with a segmental resection. Postoperative complications did not develop in 108 patients. Postoperative diffusion of tuberculosis developed in 10 patients, reactivation of the lesions in 2, bronchial fistula in 23, and empyema in 9. Other complications in nine patients were controlled by antibiotics or by collapse therapy. Clinical cure was obtained in 62 patients after lobectomy (91%), in 30 patients after segmental resection (78%), in 25 after pneumonectomy (71%) and in six after a lobectomy combined with a segmental resection (54%). There were eight deaths. In six patients only was death attributable to the operation. Five patients died after a pneumonectomy and one after a lobectomy, a rate of mortality of 14% and 1% respectively for these operations. There were no deaths after segmental resection alone or in combination with a lobectomy.

The Site of Origin of Lung Cancer and Its Relation to Histological Type. J. B. Walter and D. M. Pryce. Thorax **10:**117-126 (June) 1955 [London, England].

The view that the majority of lung cancers arise in the main bronchi is based mainly on postmortem studies of the disease in its terminal stages when the tumor has, in most instances, attained a large size. In these cases the direct spread and lymphatic metastasis have combined to produce the familiar hilar mass involving lung, bronchi, vessels, and mediastinal structures alike. Gross involvement of the large hilar bronchi is usually present, and this has been assumed to be the origin; it is doubtful whether this assumption is often justified. The authors have long been aware of the great frequency of the peripheral type of pulmonary cancer. In examining 207 resected lung cancers they definitely located the site of origin in 59.4%, and in an additional 18.4% the probable site was found. Th tumors were classified according to the site of origin into thre groups: central, arising in one of the nominate bronchi; inte mediate, arising in a macroscopically visible branch of one the nominate bronchi; and peripheral, arising in one of th minute bronchi or bronchioles. Of 123 definitely located tumor 47.1% were central, 3.3% intermediate, and 49.6% periphera The most distinctive feature of the central tumors was bronchi obstruction; this was present in all cases, and examination the obstructive changes in the lung beyond was found to a useful guide in the location of tumor origin. Peripheral tumo often showed central scarring (55%), and when bronchi involvement was present it was due to invasion either from t primary growth directly or from secondary lymph nodes. T majority of small tumors were central, and it is concluded th the central type produces early symptoms. The giant and lar tumors were mainly of peripheral type indicating that the ons of symptoms occurs at a later stage in the development of t disease. Of those tumors whose site of origin was located, t adenocarcinoma was always peripheral and the polygonal c growths frequently peripheral (86.7%). Squamous-cell tumo were more often central (57.9%) than peripheral (36.8%), whi oat-cell carcinomas were equally divided between the t groups. Comparison between the histology of the 207 surgic cases and a postmortem series of 159 cases gives some id of the surgical selection, and it is concluded that the centr type is favored for resection. Since in this surgical series abo one-half of the tumors were peripheral, the authors believe th the figure for lung cancer as a whole is considerably high than this. They believe that this frequency of the periphe type is a major factor in the low operability rate and po prognosis in lung cancer.

Evaluation of Vagotomy with Gastroenterostomy Perform for Chronic Duodenal Ulcer: Report Based on Five-Year F low-Up of 145 Patients. S. O. Hoerr. Surgery **38:**149-157 (Ju 1955 [St. Louis].

Of 154 patients with chronic duodenal ulcer who underwe subdiaphragmatic vagus resection combined with posteri gastrojejunostomy at the Cleveland Clinic between 1946 a 1949, 145 were followed for a minimum of five years after t surgical intervention. Of these, 118 (81.4%) obtained satisfacto results, which were excellent in 92 (63.4%) and good in (18%). Results were unsatisfactory in 27 patients (18.6%), of whom (about 4% of the total number) were improved in th ulcer symptoms were no longer present; but the patients we dissatisfied with the functioning of the gastrointestinal tra and usually required daily medication, largely because of psych logical factors. Of the remaining 21 patients (8% of the to number), who were therapeutic failures, 12 had recurrent ulcer tion that was proved at a second operation in 8 and by x-r evidence correlated with the clinical picture in 4. One of t 21 patients died from a second operation for ulcer disease another hospital and one died of a mesenteric vascular occlusi possibly related to a large jejunal ulcer; 2 died of other caus Of the remaining 17 patients, all but 3 (2%) are satisfactori controlled at the present time insofar as ulcer symptoms a concerned; this has been achieved in 6 of these patients by second operation and in the other 8 by a medical regime Troublesome side-effects of the operation were infrequent; two patients the dumping syndrome was a problem, and five patients diarrhea that could be attributed to the operati proved annoying. In 134 patients data were available on t postoperative body weight, which suggest that there is postoperative impairment of ability to maintain normal weig Since vagotomy combined with posterior gastroenterostom has a mortality rate of less than 0.5% and few side-effec it is believed that it should continue to be used when surgic intervention is necessary in the poor-risk patient or when t surgeon is confronted with a technical situation renderi gastric resection and closure of the duodenal stump undu hazardous.

Evaluation of Gastric Exfoliative Cytology. D. C. Browne, R. Mitchell, G. Welch and W. Sorrell. Gastroenterology 28: 964-968 (June) 1955 [Baltimore].

The authors are concerned with the gastric brush technique, a rapid method for obtaining gastric material for cytological study, which was described by Ayre and Oren in 1953. Their aim was to ascertain its value for screening and to compare its results with gastroscopy and roentgenography. The 93 subjects of this investigation were hospitalized patients referred to the gastroscopic clinic for study. All patients had been subjected to roentgenographic examinations of the upper gastrointestinal tract prior to admission. Cytological material was obtained by means of Ayre's gastric brush technique, immediately following which gastroscopic examination was performed. This permitted evaluation of the safety of the brush method. Of the 93 patients, 65 (69.7%) showed some evidence of the instrumentation on gastroscopic examination. The lesions occurred as localized hemorrhagic submucosal areas with no superficial breaks, as small excoriated areas with active bleeding, and occasionally as areas from which strips of mucosa appeared to have been removed. Bleeding was never excessive. In 2 patients in whom gastroscopy was performed a week after gastric brushing, no evidence of trauma was noted. Surgical treatment was suggested to the 93 patients and 56 accepted, the remaining 37 being followed on a medical regimen. The present report is concerned primarily with the patients who underwent operation and in whom immediate follow-up evaluation was possible. The authors feel that roentgenographic and gastroscopic examinations, when applicable, remain the most important and reliable methods available today in diagnosis of gastric lesions; the brush technique may assist in establishing a diagnosis of malignant disease, particularly when the mucosal surface is involved and the lesion is within the field of the brush. A positive result of the brush test for malignant cells, or one compatible with malignant disease, indicates a malignant gastric lesion. Negative reports are worthless. Ayre's gastric brush is relatively safe. Although trauma from the brush or instrument occurred frequently, in no instance were there any sequelae of clinical importance. The present series does not consist of early asymptomatic patients but, rather, of hospitalized patients with evident gastric disease who were under better control than outpatient clinic or private patients. In the light of the results obtained, it would scarcely seem practical to apply the Ayre brush method as a screening procedure until many technical refinements have been accomplished.

Study of the Dumping Syndrome in a Series of 100 Gastric Resections for Ulcer. A.-G. Weiss, L. Hollender and Z. Massy. Arch. mal. app. digest. 44:291-305 (March) 1955 (In French) [Paris, France].

In a series of 100 patients who underwent gastric resection for ulcer, 18 obtained poor results, and of this group 9 had the dumping syndrome. In analyzing the factors operating in these patients, it was found that neither sex, age, nor location of the gastric lesion showed correlation with the dumping syndrome, while psychic state, occupation, and quality and duration of convalescence did. Seven of the patients were tense, nervous, and irritable. The more intellectual occupations were better represented in the group than the less. The postoperative health and dietary programs prescribed were scrupulously observed by only one patient, poorly observed by two, and not observed at all by six. None of the patients had allowed sufficient convalescent time for good readaptation. Experimental observations made of the nine patients were not conclusive. In two there was a definite hypokalemia at the onset of attacks, but the administration of potassium did not modify the symptoms with the exception of the sense of fatigue, which diminished after prophylactic intravenous injection of potassium. It would seem that the hypokalemia was the result of early disturbance of carbohydrate metabolism. The other electrolytes were within normal limits. A study of the acidity curve after resection showed no significant difference between patients with and without the dumping syndrome. Dumping syndrome rarely occurs after gastric resection for neoplasm; this appears to be an indication that the syndrome is intimately connected with the neurovegetative imbalance characteristic of the gastric ulcer patient. The point of departure of attacks of dumping syndrome is very likely distention of the jejunum by poorly digested food, but the basic cause of the syndrome remains unknown.

Increased Excretion of Aldosterone Immediately After Operation. J. G. Llaurado. Lancet 1:1295-1298 (June 25) 1955 [London, England].

Surgical trauma is followed by a positive sodium balance and a negative potassium balance. The discovery by Grundy and co-workers in 1952 of a new hormone of the adrenal cortex, now called aldosterone, which has the ability to increase greatly both sodium retention and potassium excretion by the kidney, the subsequent isolation of this hormone, and the determination of its chemical structure have given a new impetus to the investigation of clinical disturbances associated with sodium retention and increased potassium excretion. Having observed previously that aldosterone (electrocortin) was present in large amounts in the urine of a patient suffering loss of potassium, it seemed important to the author to determine whether the potassium loss following surgical trauma could also be explained by increased secretion of the electrolyte-regulating corticoid (presumably aldosterone). He made a search for this corticoid in the urine of patients before and at various stages after surgical operation. By a bioassay designed to detect aldosterone, it was shown that a sodium-retaining and potassium-excreting factor is present in the urine of patients after surgical operations. Some patients excrete this factor before operation, but in all cases the excretion after operation is very much greater than before operation. Evidence is adduced that this activity is due to aldosterone. The increased excretion of electrolyte-regulating corticoid is shown to accompany the sharp potassium loss and the early sodium retention that are common features of the normal response to surgery. Excretion levels of this corticoid correlate qualitatively with the sodium/potassium ratio in the urine of patients before and after operation. Increased production of the electrolyte-regulating corticoid may be one of the factors responsible for the electrolyte changes in the immediate postoperative period. The results of assays with pure crystalline aldosterone are also reported. This steroid is 100 times as strong as desoxycorticosterone when assayed in terms of sodium/potassium urinary deviation in the rat by the present method.

NEUROLOGY & PSYCHIATRY

Physiologic Observations Following Total Hemispherectomy in Man. G. M. Austin and F. C. Grant. Surgery 38:239-258 (July) 1955 [St. Louis].

Right-sided total hemispherectomy with removal of all of the cortex, underlying white matter, and basal ganglions, leaving only the thalamus and hypothalamus, was performed on two women, aged 35 and 28, and two men, aged 28 and 47, with malignant tumors such as astroblastoma, glioblastoma multiforme, and nonspecific glioma. The prime purpose of the operation was an attempt to remove the tumor radically in order to prolong the patient's life in the possibility of a cure. There was no operative mortality, and all patients who already had severe hemiparesis or hemiplegia before the total hemispherectomy regained gross function of the left leg sufficient to walk with some degree of facility. Some movement was regained at the shoulder, and there was also slight elbow flexion, although no finger movement was regained. Electroencephalograms taken before and after the operation showed improvement in normal frequencies and amplitude over the remaining hemisphere after the hemispherectomy. Psychological studies showed relatively little change of memory, and intellectual capacity for concrete facts remained good. There was considerable increase in the latency of response to questions. Most pronounced changes were in the realm of perceptual thought. Quantitative measurement of pain and touch showed that pain sensation was decreased less than touch on the side opposite hemispherectomy. Touch sensation remained grossly impaired, whereas threshold for pain sensation at the end of three months had returned to normal. Thalamic sections made on the brain of one patient who died two and one-half months postoperatively showed complete degeneration of the nucleus ventralis posterolateralis and almost complete degeneration of the nucleus ventralis posteromedialis on the ipsilateral side.

Stilbamidine Treatment of Tic Douloureux. B. Woodhall and G. L. Odom. North Carolina M. J. **16**:222-224 (June) 1955 [Winston-Salem, N. C.].

Woodhall and Odom began to use stilbamidine therapy for treatment of trigeminal neuralgia (tic douloureux) in April, 1953. Based upon observations of the treatment of blastomycosis with stilbamidine at Duke Hospital and the resultant neuropathy, 1.5 gm. of the drug was chosen as being close to the minimum effective dosage. Stilbamidine isethionate, 150 mg., was freshly dissolved in 150 cc. of 5% glucose and distilled water, protected from light by a dark paper covering, and given intravenously over a period of one hour. No shock-like reactions were observed. The course of therapy consisted of 10 daily injections for a total dosage of 1.5 gm. of the drug. The authors found that intravenously administered stilbamidine isethionate controlled the pain of trigeminal neuralgia in 36 of 41 patients in this preliminary series of observations for a period ranging between two years and nine months. The relief of pain was associated with sensory changes over the trigeminal and upper cervical dermatomes that suggest a true chemical neuropathy. In a small percentage of cases, unpredictable formication and paresthesias occurring over the face tended to decrease the potential value of this therapeutic agent. The deferred action of the drug in patients with severe and unrelenting tic pain is a severe trial to both the patient and the physician and may necessitate provisional methods of control before the onset of the chemical neuropathy. Although this drug in its intravenous form may not be the definitive medical therapy for trigeminal neuralgia, it represents a valuable adjunct to the care of this often complex pain syndrome. A continuing study of the influence of stilbamidine, in both its intravenous and its oral forms, upon the course of trigeminal neuralgia should be encouraged.

Latent Epilepsy as a Factor in Tension States. D. W. Liddell, A. A. Robin and C. E. Darby. J. Nerv. & Ment. Dis. **121**:215-222 (March) 1955 [New York].

Pathological tension is present as a symptom in many psychiatric conditions. These tension states are marked by multiple symptomatology. The patients complain of feeling on edge, of being unable to relax, of restlessness, of anxiety, of their thoughts going round, and of insomnia, headaches, irritability, and exhaustion. The authors show that some tension states are in fact epilepsy, possibly latent at the time of examination. It should be noted that the epileptic prodrome is also a tension state, lasting a day or so and being relieved by the epileptic discharge, while in the cases under review this discharge failed to occur and tension continued for weeks or months. The finding that first drew the attention of these authors to the possibility that latent epilepsy formed a possible basis of tension states, was the third or lower subharmonic response to photic stimulation, which, in their view, may be an indication of latent epilepsy, even in the presence of an otherwise normal record. Responses to photic stimulation were reviewed and revealed that third or lower subharmonics were usually associated with further evidence of epilepsy in the electroencephalogram. When subharmonics occurred alone the patients in question showed tension as a prominent symptom. The authors present the histories of four patients with prolonged tension states in whom electroencephalographic studies revealed a third or lower subharmonic response to photic stimulation as the only irregular finding at routine examination. The first patient presented a tension state with a long history of stress. In this woman the constitutional aspect was obvious as her daughter was epileptic. Her own complaints preceded her first fit by about three years. Photic stimulation alone reproduced
her symptoms and when continued produced myoclonic
ments, visual hallucinations, or a fit. Phenobarbital provid
adequate safeguard against this with some clinical improve
A satisfactory social solution was found. The second cas
emplifies the interaction of exogenous factors with a
epileptic constitution in the production of tension. Once suff
stress had occurred, tension seemed to be self-perpetuati
stillbirth produced the initial anxiety and tension, which
continued for two years. Photic stimulation also acted
source of external stress. This produced a low-frequency
rhythmia in the electroencephalogram. However, when the
was removed the dysrhythmia continued and increased in
tude in a self-perpetuating manner and was accompanied
cally with increasing uneasiness. A major fit eventually res
with temporary relief of tension. The third patient also
plained of tension. While the external environment must
played a large part in exciting it, environmental manipu
offered little hope. Temporary improvement was produc
manipulation of the internal environment and the patien
learned to do this himself with alcohol. The last patient
tension state in which the clue offered by the third subharn
made the psychological tension comprehensible in physical
as an epileptic prodrome. The symptoms were produced by
reaction to environment and abated when the environmen
changed. Treatment for epilepsy or environmental manipul
may be useful in the treatment of this group of tension sta

Value of Fractionated Encephalography. G. J. Melot a
Potvliege. Acta clin. belg. **10**:6-19 (Jan.-Feb.) 1955 (In F
[Brussels, Belgium].

The authors performed over 300 pneumographies, usin
encephalography and ventriculography, in patients with ce
arachnoiditis or tumors above or below the tentorium.
experiences led them to use the technique of fractionate
cephalography as described by Robertson and by Lindg
the method of choice. A moderate quantity of air is used,
can be adapted to the individual patient and directed t
the particular region to be examined in each case. The tech
is a safe one. When properly practiced, it yields satisf
information on the external surface and the internal structu
the brain. It also permits ascertaining the permeability
cerebrospinal fluid canals, which knowledge is of prime in
ance in the diagnosis and treatment of arachnoiditis and
tumors. Seven illustrative case reports are presented. In
patients, fractionated encephalography gave diagnosis of
specific optic chiasm and pontocerebellar arachnoiditis, ad
meningitis of tuberculous origin, cerebellar hemangioblas
astrocytoma of the brain stem, and acoustic schwannoma.

**Superior Hemorrhagic Polioencephalopathy (Wernicke's
ease) in Hyperemesis Gravidarum and in Carcinoma of Sto**
W. J. C. Verhaart, C. B. F. Daamen and J. A. M. Van
Nederl. tijdschr. geneesk. **99**:1410-1414 (May 14) 195
Dutch) [Haarlem, Netherlands].

The symptoms of superior hemorrhagic polioencephalo
which were first described by Wernicke in 1881, are ano
vomiting, nystagmus, ophthalmoplegia, impairment of me
ataxia, weakening or abolishment of tendon reflexes, disor
tion, and, finally, coma. It is generally assumed that the dise
usually caused by chronic alcoholism, although Wernicke'
patient was not an alcohol addict, and the disease is also
in patients with gastrointestinal disturbances. Of the four pa
whose histories are described in this paper, two had canc
the stomach and two had hyperemesis gravidarum. The foo
take was probably deficient in all four of these patients. Fe
experiments in pigeons revealed that lack of vitamin B_1 r
in conditions similar to those seen in patients with sup
hemorrhagic polioencephalopathy. Furthermore, experienc
Japanese concentration camps also indicated that vitami
deficiency may cause superior hemorrhagic polioencephalop

Neurosurgical Experiences with Diabetes Insipidus. E. H. Botterell and W. J. Horsey. Neurology 5:449-460 (July) 1955 [Minneapolis].

The hypothalamohypophyseal system regulates the rate of excretion of water in the urine by the elaboration of the antidiuretic hormone (Pitressin). Lesions of the supraoptic nuclei, of the supraopticohypophyseal tracts, or of the neurohypophysis are capable of causing diabetes insipidus in humans, and, experimentally, in animals. Polyuria and polydipsia are readily controlled by the parenteral administration of Pitressin. A series of patients with posttraumatic diabetes insipidus is described. The incidence of this complication is 0.44% of 1,148 cases of craniocerebral injury admitted to the Toronto General Hospital in six years. Of seven patients whose cases followed accidental injury, six had symptoms after a latent period of about eight days, while one had polyuria on the day of injury. At autopsy, the latter showed a recent hemorrhage into a cystic space in the infundibular process of the neurohypophysis. Three patients with intracranial space-occupying lesions are presented to show how the hypothalamohypophyseal system may be disorganized with the production of diabetes insipidus. Associated neurological and endocrine disorders are described. The parenteral administration of Pitressin conveniently and effectively controls the diabetes.

GYNECOLOGY & OBSTETRICS

The Treatment of Eclampsia (Imminent or Actual) by Continuous Conduction Analgesia. R. Bryce-Smith and E. O. Williams. Lancet 1:1241-1244 (June 18) 1955 [London, England].

The histories of six women with eclampsia who were treated by continuous conduction block are described. Caudal, lumbar extradural, and spinal approaches were used in the six patients. The authors gained the impression that a block by the caudal route is of little value. The blood pressure is controlled most effectively by continuous spinal analgesia, but this carries the risk of meningitis. A continuous lumbar extradural block is safer and will give almost as good results for 24 hours as a spinal. Whichever method is chosen, there is a chance that labor will be retarded by a block that reaches the optimal level (varying from patient to patient) for controlling the blood pressure. In such instances, it is suggested that, rather than lower the level of the block, a Pitocin drip should be established to stimulate normal uterine function. The improvement in the appearance of an eclamptic patient treated with conduction analgesia is striking; and, since heavy sedation is unnecessary, maternal morbidity is reduced and the fetus offered a better chance of survival. On these grounds a continuous conduction block in selected cases is preferable to treatment with sedatives; but, since a postpartum diuresis can be expected to follow delivery in most cases, eclamptic oliguria by itself does not necessarily provide a specific indication for block therapy. At present the authors do not feel justified in suggesting that a conduction block be used in all cases of severe toxemia; but in desperate cases block therapy has much to offer. Nevertheless such treatment presents a disadvantage, since it is necessary to provide constant supervision throughout the 24 hours by an anesthetist and an obstetrician, who must always be at hand.

Rupture of the Uterus: A Report of 50 Cases Which Occurred in Two and a Half Years at Baragwanath Hospital, Johannesburg, South Africa. D. W. P. Lavery. J. Obst. & Gynaec. Brit. Emp. 62:454-463 (June) 1955 [London, England].

Rupture of the uterus is of particular interest to obstetricians in South Africa who practice among the Bantu people. The author reviews observations on 500 Bantu women with uterine ruptures. These ruptures occurred in a period of 30 months among 6,857 deliveries, a ratio of 1:137 (compared with 1:2,233 in Britain). The average Bantu child weighs only slightly less at delivery than does the average European child, but the pelvis of the Bantu woman is definitely smaller than that of the European woman. All but four women were multigravidas, but, contrary to the generally accepted concept of the grand multipara being more liable to this accident, the greater number of patients (31) had been pregnant four times or less. Complete rupture, that is, the form that affects all uterine layers and communicates with the general peritoneal cavity occurred in 38 of the patients; incomplete rupture, involving only the muscular coat occurred in the other 12 patients. Primary rupture occurred in 45, and secondary rupture, through previous cesarean section scars, occurred in the other 5 women. The site of rupture was more often the anterior lower segment and was transverse in direction. The causes of uterine rupture include obstructed labor, malpresentations, disproportion, and, in the South African Bantu woman, premature bearing-down on an incompletely dilated cervix. The characteristic sudden sharp pain, with cessation of labor pain, occurred in 41% of cases. The fetus could be palpated "under the skin" in most patients, and a constant feature in primary spontaneous ruptures was the presence of blood in the urine. Treatment consisted of repair of the uterus in 28 of 50 patients and hysterectomy in 11 patients, and in 11 patients no operation was possible. Antishock measures, blood transfusion under pressure, and corticotropin by intravenous drip therapy all formed adjuncts to surgery. The mortality rate was 32%; all but one of the maternal dealths occurred in women with complete rupture. Causes of death were shock and hemorrhage in 11 women, peritonitis in 3, pulmonary embolism in one, and gas gangrene in one. Of the 16 patients, 6 died within five hours of admission.

Endometriosis: The Results of Conservative Surgery. D. B. Whitehouse and A. Bates. J. Obst. & Gynaec. Brit. Emp. **62:**378-384 (June) 1955 [London, England].

For the purpose of this study, conservative surgery was defined as an operation for endometriosis in which ovarian tissue was conserved. Between Jan. 1, 1943, and Dec. 31, 1948, 100 patients were so treated at the Birmingham and Midland Hospital for Women. The follow-up interval, therefore, varied from 6 to 11 years. The diagnosis of endometriosis was confirmed in each case by histological examination of tissue removed at operation. On the basis of the operative procedures, the women are classified into three groups. The 85 women of group one were subjected to resection of pelvic endometriosis with preservation of the reproductive function; the 9 of group two were subjected to total hysterectomy with conservation of ovarian tissue; and in the 6 of group three extra-abdominal endometriomas were excised. Follow-up was possible in 46 of the 85 patients in group one; in 32 of these 46 the symptoms disappeared completely; 7 had mild recurrence of symptoms; and the other 7 had severe recurrence requiring further treatment. More complete removal of all foci of endometriosis at operation would probably have reduced the recurrence rate. Of 35 patients with pelvic endometriosis in whom reproductive function was preserved, 16 became pregnant, producing 24 children. The fertility rate was not appreciably influenced by the extent of the operation or the age of the patient when under 41 years. Follow-up of those in whom recurrences had been treated suggested that surgery was preferable to radiotherapy in women over 30, because of the severe menopausal symptoms associated with the latter. No evidence of recurrence was found in five patients in whom endometriosis had been treated by hysterectomy preserving ovarian tissue. It is suggested that, if radical surgery is indicated, complete castration is not necessary to prevent recurrences, provided the uterus is removed.

Prolapse of a Fallopian Tube into the Vaginal Vault Following Hysterectomy. J. W. Funnell and J. W. Kelso. South. M. J. 48:681-686 (July) 1955 [Birmingham, Ala.].

The prolapse of a fallopian tube into the vaginal vault after hysterectomy is an unusual complication. The prolapsed tube not infrequently is mistaken for a malignant lesion of the vagina. The five cases presented were collected from several sources. All were seen in consultation, but only one of these patients was treated by the authors originally. The myth that this complication occurs only after vaginal hysterectomy is disproved by the fact that two of the five cases presented occurred after abdominal hysterectomy. The symptoms of prolapse of a fallopian tube into the vagina after hysterectomy are usually a profuse, watery, often bloody, vaginal discharge and varying degrees of lower abdominal discomfort most often localized to the side of the prolapsed tube. In some instances, especially in cases of long standing, the patient may be entirely symptom-free. The diagnosis should be suspected when there is a red, granular, polypoid mass projecting into the vagina from the vaginal cuff. It must be differentiated from proliferative granulation tissue and a malignant lesion of the vagina, the two conditions with which it is most often confused. Final diagnosis depends upon biopsy and histological examination of the tissues. Treatment is rather simple and one of several methods may be used. The mass may be excised and the base cauterized, or it may be excised with the cautery loop. However, with these methods, healing of the defect in some instances requires a considerable period of time. Because of this, the authors prefer to grasp the mass with a hemostat and make an elliptical incision through the vaginal cuff. Then, with slight traction, they deliver the tube into the vagina, ligate it as high as possible, and excise the distal portion. The defect in the vaginal cuff is then closed with interrupted sutures. If there is a vaginal infection, it should be treated prior to the above procedure.

DERMATOLOGY

Alseroxylon in the Treatment of Pruritic and Psychogenic Dermatoses. R. J. Ferrara and H. Pinkus. A. M. A. Arch. Dermat. 72:23-28 (July) 1955 [Chicago].

The coincidental improvement or disappearance of psoriasis has been noted in patients receiving treatment with Rauwolfia for arterial hypertension and psoriatic arthritis. Favorable results have also been reported in a series of patients with various dermatoses affected by a psychogenic or emotional tension factor who were treated with reserpine (Serpasil). Alseroxylon (Rauwiloid), another Rauwolfia derivative, was used by the authors in treating 47 patients with various dermatoses in which tension factors or psychogenic stimuli were prominent. This product, which is a concentrate of the active alkaloids, extracted from the root of Rauwolfia serpentina, was chosen on the assumption that greater clinical benefit may be derived from a mixture of alkaloids than from a single alkaloid. It contains all the desirable hypotensive alkaloids found in the root, but it does not contain the less desirable yohimbine-like alkaloids. Reserpine and the recently isolated and identified rescinnamine account for about 60% of the hypotensive potency of alseroxylon; the remaining 40% is attributed to other as yet unidentified alkaloids. The daily doses of alseroxylon varied from 4 to 8 mg., depending on the age of the patient and the severity of the disease. The treatment was given in courses of from two to six weeks, and periods of placebo therapy were alternated with periods of alseroxylon therapy in 19 patients, to permit evaluation of the therapeutic effect of alseroxylon as compared with placebo tablets of the same appearance. Local therapy either was omitted or included a bland preparation; when used, it was continued without change throughout the course of alseroxylon and placebo therapy. No other therapy was given. All the patients had chronic dermatoses, mostly of a pruritic nature, that were either in a state of exacerbation or poorly controlled; sedatives, local antipruritics, antihistamines, corticosteroids, and x-rays were among the forms of treatment that had previously been tried. The patients were reexamined at weekly and biweekly intervals and were questioned about their subjective symptoms. Varying degrees of relaxation, tranquilization, and mild sedation were reported by all. Itching was relieved in all the patients with pruritic conditions, except for the one who had urticaria. Subjective effects from alseroxylon were noted by the patients within three to seven days. The maximum therapeutic response was obtained in one to four weeks. Placebo substitution led to the return of cutaneous symptoms, also within a period of one to four weeks. The side-effects such as fatigue, drowsiness, and nasal congestion were generally of little importance except in one patient who refused further treatment because of marked fatigue. The results obtained in these patients, 36 of whom were foll either to complete recovery or long enough to permit com tive evaluation of alseroxylon and the placebo therapy, to show that alseroxylon possesses qualities of decided in the treatment of dermatoses in which a psychogenic is prominent.

Livedo Reticularis with Summer Ulcerations. M. Feldak A. Hines Jr. and R. R. Kierland. A. M. A. Arch. Derma 31-42 (July) 1955 [Chicago].

A study of 12 women, aged 17 to 54, with idiopathic reticularis seen at the Mayo Clinic during the last 10 yea disclosed the existence of a new syndrome in which lived cularis is associated with ulcerations of the legs occurrin marily during the warm spring and summer months inste during the cold fall and winter months as usual. Idio livedo reticularis may be defined as a condition of the characterized by a reddish-blue, mottled, reticular, or bl discoloration. It had been present in these patients to a va degree for several weeks, months, or years before the on the ulcerations and was usually worse in the winter th other times. The present histories of the patients, which remarkably similar, showed the following typical sequen events: edema of the feet and ankles, developing in the or summer and followed by the appearance of bluish-r farctive areas over the ankles, dorsa, and soles of the fee on the anterior aspect of the legs. These infarcts eithe appeared spontaneously with rest in bed or were succeeded two or three weeks at the same site by ulcerations result drainage of serous, serosanguineous, or purulent material ulcers were extremely painful and resistant to treatmen they would eventually heal, leaving an atrophic, pigmented The entire course from the onset of the infarcts to ulce and healing would take from one and one-half to three m new ulcerations would develop continually during the sur but with the return of cold weather the tendency to recu ceased and the ulcers that were present healed more rapid that the patient became free of ulcerations or markedly The results of physical examination of the patients, apart the ulcerations and the presence of livedo, were essentiall mal in every instance. Histopathological studies reveale clusive changes in the arterioles and veins of these patient were similar to those in the arteries and veins of five other winter ulcerations accompanying idiopathic livedo retic No evidence was found to indicate that tuberculosis, syphi periarteritis nodosa was a causative factor in any of these None of the patients, eight of whom were housewives employed in an occupation in which she was exposed to exc heat or cold, and in none was occlusive arterial disease suspected or demonstrated. A combination of medical ment employing mild local antiseptic dressings, powdered cells, rest in bed with elevation of the extremities, elastic portive bandages to prevent edema, and a trial of the methonium drugs, seems to be the therapeutic method of c for patients with this syndrome. Bilateral sympathectomy, in four patients, produced little permanent benefit.

Curettage as a Method of Treatment for Plantar Warts. Seale and J. B. Richardson. South. M. J. 48:575-577 (June) [Birmingham, Ala.].

The operative field is cleansed with 70% alcohol and the area is sprayed with ethyl chloride, and, when blan occurs, a 26 gauge one-half inch hypodermic needle is c with one thrust completely under the wart. About 2 cc. of procaine solution without epinephrine is then injected slowly, since pain increases with the rapidity of the inje When anesthesia is complete the keratinized surface of the is removed, and then with a curet the globules of verr tissue are shelled out, leaving a cavity with overhanging a glistening fascial floor and firm side walls. The overha edges are removed with small curved scissors and the w filled with 5% Mercurochrome. Profuse bleeding is contr by a pressure dressing held in place by adhesive tape compl encircling the foot. The patient is instructed to remove the age the following day and apply an antibiotic ointment and a simple dressing twice daily until healing occurs. A consecutive series of 140 patients (total of 155 lesions) were treated in this manner and followed for at least one year. There were 15 recurrences in this group. The method yielded a higher percentage of cures than did the other popular forms of treatment, such as radiotherapy, cauterization, and electrodesiccation.

OPHTHALMOLOGY

Studies on the Effect of Chloromycetin to Trachoma, Especially on the Comparison of Various Concentrations of Ointment. M. Mikuni and A. Tsuchiya. Acta med. et biol. 2:755-771 (Dec.) 1954 (In English) [Niigata, Japan].

This report is concerned with the use of chloramphenicol (Chloromycetin) ointment, in various concentrations, in the treatment of trachoma in nearly 800 Japanese children. A chloramphenicol ointment of 5% concentration was used in 85 children, a 2% ointment in 185 children, a 1% ointment in 234 children, a 0.5% ointment in 130 children, a 0.25% ointment (first five weeks) plus a 3% ointment in 77 children, and a 0.1% ointment (first five weeks) plus a 1% ointment in 55 children. The ointments were applied once a day, and examinations were made once a week. The severity of the trachoma lesions was graded according to MacCallan's three-stage classification to which the group of patients with doubtful trachoma was added. The authors compare the results obtained with the different concentrations of chloramphenicol in the various stages of trachoma, particularly with regard to the length of treatment required. With regard to the cure rate in all cases, they state that with 5% ointment 52.3% of the children with trachoma were cured in 8 weeks and 85.3% in 20 weeks; with the 2% ointment the respective figures were 54.2% in 9 weeks and 81.5% in 20 weeks; with 1% ointment, 51.3% in 10 weeks and 76.2% in 20 weeks; and with 0.5% ointment, 51.1% in 11 weeks and 71.8% in 20 weeks. The 0.25% ointment applied for the initial 5 weeks gave only 5.2% cures, which increased to 55.8% in 11 weeks by the substitution of 3% ointment and reached 83.2% in 20 weeks. The 0.1% ointment applied for the initial 5 weeks gave a 3.6% cure rate, which increased, as the 1% ointment was substituted, to 51.3% within 12 weeks and reached 76.3% within 20 weeks. In general, the higher concentrations of chloramphenicol produced the better results, but, even with 0.5% ointment, if applied continuously and over a long period, satisfactory results could be obtained. The advantages of trachoma therapy with chloramphenicol ointment are that even high concentrations cause no irritation or other undesirable secondary effects and that the ointment is very stable. The authors feel that chloramphenicol ointments of 1% or 2% concentration are best for practical use.

Etiology and Therapy of Retinal Vascular Occlusions. B. Anderson and W. Vallotton. A. M. A. Arch. Ophth. 54:6-12 (July) 1955 [Chicago].

The authors present their experiences in 120 patients observed during the last decade. In arterial occlusion the criteria for inclusion in the study consisted of the appearance or persistence of the characteristic cherry-red spot. On the venous side, the standard for inclusion in the study was clear-cut obstruction of a branch by a rigid artery or the characteristic overripe smashed-tomato appearance of the central venous trunk occlusion. The authors feel that in many instances one could make a reasonable assumption of a correlation between the retinal lesion and some other factor in the history or examination that would permit the division of these cases into etiological groups. Where the diastolic blood pressure was above 100 mm. Hg and the patient over 50, classification was entered under the hypertensive-arteriosclerosis column. Likewise, when there was a clear-cut history of rheumatic fever with other residual evidences of such an infection, the authors felt that there most probably was a causal relationship between this past disease and the occlusion. Therapeutic agents are available that are presumed to relax vasospasm, and anticoagulants that reduce the chances of further thrombosis. The problem lies in bringing these agents into effective use in properly selected cases. Treatment is recommended for all arterial occlusions seen within the first week and for all venous occlusions seen within the first month after the onset. There was no evidence of therapeutic effect on the arterial occlusion of hypertensive-arteriosclerotic origin, but comparative cases suggested that therapy might be beneficial in venous obstructions. Treatment seemed to be most effective in the infectious and postinfectious group in both the arterial and the venous obstructions; two of four arterial occlusions improved under therapy while no improvement was noted in six untreated cases. The authors feel that anticoagulant therapy is justified in both arterial and venous retinal occlusions, that the results in the hypertensive-arteriosclerotic group will be poor, but that in the occlusions associated with infectious processes therapy adds appreciably to the restoration of function.

INDUSTRIAL MEDICINE

Edathamil Calcium-Disodium in Treatment of Occupational Lead Poisoning. A. Zambano and L. Rossi. Riforma med. 69: 398-404 (April 19) 1955 (In Italian) [Naples, Italy].

Good results in treating lead poisoning with edathamil calcium-disodium (calcium disodium salt of ethylenediaminetetraacetic acid) were obtained in six lead workers who were given the drug intravenously in a 20% hypertonic solution in daily doses of 2 gm. for seven consecutive days. Some patients received a second course of treatment after a seven day treatment-free period. No side-effects were noted. The urinary excretion of lead increased and that of coproporphyrin decreased progressively, while the lead blood levels were changed only slightly. Edathamil calcium-disodium acts to make a lead complex by exchanging the calcium contained in its molecule for lead to form a chelate, which does not have the toxic action peculiar to the free metal. The effectiveness of edathamil calcium-disodium in lead poisoning is definitely greater than that of other agents that have been used for the purpose, but greater clinical experience with the drug is needed.

Problem of Rhinitis and Asthma in Bakers. C. Pestalozzi and U. W. Schnyder. Schweiz. med. Wchnschr. 85:496-501 (May 21) 1955 (In German) [Basel, Switzerland].

Of 159 bakers, 42 showed symptoms of respiratory allergy. All 42 had allergic rhinitis, and 6 also had bronchial asthma. A familial tendency to respiratory allergy was observed in 12 (28%) of the 42 bakers, while such a tendency was observed in only 9 (8%) of the 117 bakers without allergic symptoms. Young people with a familial tendency to asthma or rhinitis should be informed about their predisposition to respiratory allergy before they start their training as bakers. In all 159 bakers scratch tests were performed with the flour used in the bakeries where they worked, and intracutaneous tests were carried out with an extract of rye and wheat. Of the 36 patients with allergic rhinitis alone, 24 (66%) had a positive reaction to the tests with the flour used in the bakeries where they worked or with the extracts of wheat or rye. The clinical aspect of the rhinitis, with short dry attacks of sneezing and production of an abundant watery secretion (rhinorrhea), as well as the results of the skin tests indicated that rhinitis in bakers is an allergic rhinitis caused by the flour they have to handle, while still other causative factors in addition to the various species of flour may be responsible for the occurrence of asthma in bakers. Most of the bakers examined showed their first symptoms of rhinitis after an average period of 12.7 years of sensitization. The intensity of the rhinitis remained unchanged for years and even decades in more than two-thirds of the authors' cases. In the six patients in whom the rhinitis was associated with asthma, the symptoms of asthma occurred for the first time after an average 18 years' duration of rhinitis. A partial or total spontaneous desensitization after a 14 to 15 years' duration of the rhinitis occurred in 4 of the 42 patients. Plimasine (a proprietary compound of tripelenamine [Pyribenzamine] hydrochloride and a sympathomimetic drug), pyrilamine (Neo-Antergan), and Synopen (N-dimethylaminoethyl-N-*p*-chlorobenzyl-α-amino-pyridine hydrochloride) were used for the symptomatic treatment of mild flour rhinitis in patients whose work capacity was not reduced. In incapacitated bakers with severe rhinitis specific desensitization should be carried out in addition to symptomatic treatment.

Rheumatoid Arthritis in Males: An Epidemiological Study of a Welsh Mining Community. W. E. Miall. Ann. Rheumat. Dis. 14:150-158 (June) 1955 [London, England].

Caplan pointed out in 1953 that some coal miners with rheumatoid arthritis and with pneumonoconiosis have characteristic chest x-rays. An epidemiological investigation of this new syndrome showed that this nodular lung fibrosis was associated with rheumatoid arthritis in more than 50% of cases; it also suggested that the prevalence of rheumatoid arthritis was increased among men with complicated pneumonoconiosis. To determine whether the progressive massive fibrosis of complicated pneumonoconiosis was a causal factor in arthritis, a survey of rheumatoid arthritis patients was undertaken in a Welsh mining valley, in which progressive massive fibrosis was common among the miners. Immediately before an x-ray survey was started in the valley, a census was taken of the population and during this census a note was made of all persons said to be suffering from any form of arthritis. Ninety percent of the complete population over the age of 15 was subsequently x-rayed, and each individual was asked whether previously or now he had painful swellings of the small joints of the hands or feet. Medical practitioners and the rheumatism clinic provided lists of patients with rheumatoid arthritis. All patients with rheumatoid arthritis found from these four sources were asked to submit to x-ray examination of chest, hands, and feet and to a differential agglutination test. The survey showed that, though the prevalence of rheumatoid arthritis among all patients with massive fibrosis is about 2.7%, compared with 0.6% among miners without massive fibrosis, the prevalence of the disease in miners does not differ significantly from that among nonminers, and therefore it is unlikely that massive fibrosis predisposes to rheumatoid arthritis. It is concluded, therefore, that neither exposure to dust nor the lung changes of complicated pneumonoconiosis play a causal role in rheumatoid arthritis. Heredity seems to play an important causal role in rheumatoid arthritis; this is also true of Caplan's syndrome and of patients with the characteristic Caplan chest x-ray findings without arthritis. There seems to be an inherited abnormality of tissue reaction, not confined to the skeletal system, in those with, or presumably liable to develop, rheumatoid arthritis. This hypothesis would account for the numerous descriptions of cases of rheumatoid arthritis accompanied by active tuberculosis that have appeared since Poncet described tuberculous rheumatism in 1902, but it does not confirm Poncet's view that tuberculosis is a cause of rheumatoid arthritis.

THERAPEUTICS

Protoveratrine in the Treatment of Arterial Hypertension. R. Tricot, A. Rozsa and P. de Boislambert. Semaine hôp. Paris 31:2045-2049 (June 10) 1955 (In French) [Paris, France].

A French preparation of the maleate salts of protoveratrines A and B in tablet form was given orally to 20 patients with arterial hypertension, 7 of whom were treated ambulatorily while 13 were hospitalized. Treatment was instituted with a dose of 1 mg. daily in four divided doses (1 tablet containing 0.5 mg of the drug), in order to determine the patient's sensitivity to the drug. This daily dose was increased to 1.5 mg. at the end of the first week of the treatment, and this dose was increased further to 2 mg. or 3 mg. only in exceptional cases in which the patients did not show sufficient response to the dose of 1.5 mg. per day. Caution seemed to be justified for two reasons. Digestive disturbances, such as heartburn, nausea, and abdominal pains, may be associated frequently with larger doses and may require discontinuation of the drug. They can be avoided by giving the drug after meals and by large doses. A sudden severe drop of the arterial pre occurred in one of the authors' patients after he had the second tablet, and it was associated with general disco and a sensation of great weakness requiring rest in the r bent position. It seems that the excessive susceptibility of c patients to the drug depends on the dose of the drug. Be of the authors' precautions concerning the dose, distur of rhythm that had been reported by other workers di occur. A large number of patients responded favorably drug by a drop of from 35 to 45 mm. Hg of the max systolic pressure and an average drop of from 15 to 20 Hg of the diastolic pressure. The effect of the drug b apparent within several hours, but the maximum effec reached about the end of the first week of the treatmen more rapid the effect of the drug, the shorter was its dur Fractionated doses and prolonged periods of treatmen therefore, required. The follow-up of the patients wa short to permit any definite conclusions concerning late of the treatment.

Treatment of Bronchopulmonary Moniliasis with CM J. W. MacIntosh Jr., J. D. Gray and C. M. Jones. (M. A. J. 72:903-907 (June 15) 1955 [Toronto, Canada].

A new analogue of chloramphenicol labelled CMA 37, had been shown to possess fungicidal properties in vitr given its first clinical trial in a 32-year-old woman with br pulmonary moniliasis. She complained chiefly of pains chest, cough, and loss of weight. Tuberculosis and carcinoma were considered in the differential diagnosi laboratory studies showed a heavy growth of organisms cl as Candida albicans, and this, together with the clinic radiological findings, established the diagnosis of bronc monary moniliasis. Various remedies were tried but fa check the steady deterioration that was taking place condition. The use of CMA 37, therefore, seemed to b ranted, although little was known of either its therapeutic tiveness or its toxicity in man. Treatment was starte three doses of 1 gm. on the first day, then 250 mg. three a day for the next, and then the dosage was increased to 5 three times a day. It was reduced again to 250 mg. three a day for the final two days. These alterations in dosag prompted by the appearance of frequency, dysuria, and turia believed to be side-effects of the antibiotic. The op oral dosage will undoubtedly have to be determined acc to the requirements in each case. The patient began to in almost at once, and six weeks after treatment she was cough and dyspnea; she had gained 16 lb. (7.3 kg.), a feeling of well-being had returned. CMA 37 may well to be as effective against the mycoses as penicillin is the gram-positive bacteria, but since it is an analogue of amphenicol, it should not be used indiscriminately. It co a nitrobenzene ring and, if its use is to be prolonged, the picture should be examined frequently. It may also ha irritating effect on the bladder, as suggested by the hem seen in this patient. No permanent damage resulted fro complication, however, for both the blood urea and the were normal on later examination after the patient had re to her ordinary activities.

Cortisone: Third Element in the Treatment of Brucellosis liminary Report. F. Corelli. Policlinico (sez. prat.) 62:4 (April 11) 1955 (In Italian) [Rome, Italy].

In addition to tetracycline and the specific vaccine, cor or hydrocortisone has been used in the treatment of bruce The combined administration of the antibiotic and hyd tisone resulted in the rapid and surprising improvement patients with this condition. The schedule of therapy was 8 (20 mg. every six hours) of hydrocortisone on the first 60 mg. (20 mg. every eight hours) for three days there 40 mg. (20 mg. every twelve hours) for two to three days 20 mg. for two to three days. Eventually, 10 mg. may be for a few additional days, but often this is not nece Tetracycline was given concurrently in daily doses of

0.5 gm. every six hours) for 30 to 40 days together with 0.5 to 1 gm. of vitamin C orally or by injection and vitamin B complex to prevent eventual side-effects of the antibiotic. Within 18 hours after hydrocortisone therapy was started, fever subsided definitively, and the profuse sweating, headache, and muscular and articular pain disappeared, while the patients' general condition, tone, appetite, and energy were restored. The therapy was well tolerated, and reactions of the Herxheimer type and water retention were not observed. The antibody formation was not influenced and the agglutinin titer increased from a pretreatment value of 1:1,600 to 1:6,400 after 6 days and 1:12,000 after 15 days of treatment. Although tetracycline remains the main agent in the treatment of brucellosis, the author's experience indicates that its combination with hydrocortisone shortens the treatment period and gives results that are far superior to those obtained with the antibiotic alone and with the specific vaccine. Further clinical experience is needed to determine whether this combined therapy is effective also in preventing the frequent relapses of patients with brucellosis.

Combined Treatment with a Chloramphenicol Ester and Streptomycin in Melitococcic Infection. G. Gambusi. Riforma med. 59:459-460 (April 23) 1955 (In Italian) [Naples, Italy].

A preparation containing chloramphenicol succinate, dihydrostreptomycin, and streptomycin sulfate was given parenterally to 15 patients with acute brucellosis, most of whom had had no previous treatment. The average daily dose was 1.5 gm. of chloramphenicol succinate and 0.75 gm. of dihydrostreptomycin and streptomycin sulfate for 9 to 17 days. The therapy was well tolerated, and general untoward reactions were not observed even in the one patient who was given the drug for 17 days. In this patient the fever subsided on the 16th day of treatment. Recovery was prompt and was still present in all but two patients eight months after the treatment was ended. The two patients in whom a relapse occurred a few weeks after the completion of treatment were given vaccine therapy with good results. This new combination is to be kept in mind when treating patients with acute brucellosis, because it is devoid of side-effects and also because the relapse rate is lower than that following treatment with other antibiotics.

Contribution to the Study of the Mechanism of Action of Antibiotics: Variation and Disappearance of Pathogenic Capacity Independent of Proliferative Capacity of a Micrococcus (Staphylococcus). H. Hinglais, M. Hinglais and Y. M. Langlade. Presse méd. 63:989-991 (June 25) 1955 (In French) [Paris, France].

The bacteriostatic power of an antibiotic agent is merely a crude criterion of its efficacy. The authors' studies on a virulent strain of Micrococcus aureus showed that, under the influence of different antibiotics, it was possible for the organism's pathogenicity to disappear before its proliferative capacity was blocked. This dissociation of effect would explain the disparity sometimes seen between antibiotic activity in vitro and in vivo. The appearance of mutations differing from the mother strain by the absence of a single enzyme has been reported in the literature, but there has been no mention of lasting disappearance of the pathogenic capacity. The phenomenon is of theoretical interest, for the evaluation of the hypothesis strongly suggested to the authors that there occurs a fixed and transmissible cytochemical alteration of the bacterial structure from the direct action of the antibiotic. This change manifests itself in a slight modification of the enzymatic equipment.

PATHOLOGY

Erythrocyte Glycolysis in Hemolytic Disease. J. W. Hollingsworth. J. Lab. & Clin. Med. 45:920-925 (June) 1955 [St. Louis].

Blood in vitro utilizes glucose, and blood containing large numbers of reticulocytes exhibits increased glucose utilization as well as demonstrable oxidative metabolism. The present study is concerned with the glycolytic rates of erythrocytes obtained from subjects with hemolytic disease and other diseases associated with reticulocytosis. It was undertaken as an investigation of the relationship of reticulocytosis and maturity of red blood cells to the glycolytic activity of blood. It was also hoped that such a study might detect some gross metabolic defect in the erythrocytes of patients with hereditary hemolytic syndromes. The mean glycolytic rate in vitro of red blood cells from 28 normal subjects and miscellaneous hospital patients was 43 (±8.8) mg. of glucose per 100 ml. of packed blood cells per hour at body temperature. The glycolytic rate of erythrocytes from 14 patients with hemolytic diseases was increased. In general, the increase in glycolytic rate was proportional to the number of reticulocytes present. There were some instances of increased glycolysis without marked reticulocytosis. Serial studies during subsiding reticulocytosis were performed on a patient with hereditary spherocytosis and on two sisters with megaloblastic anemia of pregnancy. In these subjects the relationship between glycolytic rate and reticulocytes was not exact. The data suggest that, even in the absence of reticulocytes, the gylcolytic rate in patients with hemolytic disease may be a rough index of mean age of erythrocytes and, indirectly, of erythropoiesis.

Arteriosclerotic Occlusion of Cerebral Arteries: Mechanism and Therapeutic Considerations. W. L. Bruetsch. Circulation **11:** 909-913 (June) 1955 [New York].

In an attempt to elucidate the mechanism by which narrowing and occlusion of arteries occurs in arteriosclerotic softening of the brain, an extensive microscopic examination of the brains of 20 patients with cerebral arteriosclerosis (encephalomalacia) was carried out. No evidence of the occurrence of true thrombosis was observed. The prevailing wide application of the concept of thrombosis in arteriosclerotic vascular occlusion, therefore, is incorrect. As the author's microscopic study progressed, emphasis shifted from the lipid deposit to the fibroplastic part of the atherosclerotic plaque as the major factor in the obliterative sclerosis. The presence of "embryonic foci of cellular proliferation" in the plaque appears to be the source for the slow extension of the fibroblastic obliteration in the large cerebral and other vessels, such as the coronary arteries. In the small cerebral arteries, occlusion is caused by endothelial proliferation. The proliferative changes of the endothelial cells in the small cerebral vessels and the proliferation of the fibroblasts in the atherosclerotic plaques are viewed as a morbid process occurring at a time in the patient's life when various cell types show great propensities for abnormal growth. The use of drugs that inhibit cell division and others that delay connective tissue formation may be advantageous in the retardation of the arteriosclerotic process.

Electron Microscope Observations on Collagen Diseases. G. Lelli. Policlinico (sez. prat.) 62:627-632 (May 9) 1955 (In Italian) [Rome, Italy].

Studies by means of the electron microscope were made of collagen fibrils isolated from the sternal region of 73 patients with various conditions. The results indicated an increase of resistance on the part of the fibrils with aging. In the specimens of patients with collagen diseases, however, the resistance of the fibrils, even of those outside of the involved areas, was diminished. In the specimen of one patient with scleroderma adultorum, this decreased resistance was much more marked in the fibrils of the involved areas than in those of the areas that appeared to be healthy. On the other hand, in the specimens of patients with azotemic nephritis, uremia, and cachexia, the resistance of the fibrils was increased. In the specimen of one patient with asthmatic bronchitis receiving cortisone, the fibrils were extremely resistant and completely indifferent to the hormone. The author states that, in patients with conditions in which the collagen is per se particularly resistant, cortisone may act unfavorably by speeding up the involutional process and the course toward sclerosis.

BOOK REVIEWS

Antimicrobial Therapy in Medical Practice. By Harrison F. Flippin, M.D., F.A.C.P., Associate Professor of Clinical Microbiology, Graduate School of Medicine, University of Pennsylvania, Philadelphia, and George M. Eisenberg, D.Sc., Associate in Medicine, Graduate School of Medicine, University of Pennsylvania. Cloth. $5. Pp. 284. F. A. Davis Company, 1914-16 Cherry St., Philadelphia 3, 1955.

This monograph is written by investigators who have had wide clinical experience with antibiotic and chemotherapeutic agents. The first chapter is devoted to a general description of the mode of action, pharmacological properties, dosage, and methods of administration of the sulfonamides, the available antibiotic agents, *p*-aminosalicylic acid, isoniazid, and nitrofurantoin. The next three chapters contain discussions of combined therapy, laboratory aspects, complications encountered during antimicrobial therapy, and comments concerning the management of these complications. This is followed by a general discussion of the importance of early and accurate diagnosis of infectious diseases. The next four chapters cover in detail the antimicrobial therapy of specific infectious diseases. This is by far the strongest section of the book. The next chapter deals with the prophylactic use of antimicrobial agents, and in the final chapter the authors attempt to be prophetic. The outline of this monograph is good. It should prove useful to the general practitioner and to some students. It is not a reference book, nor does it contain much that would be of great interest to the investigator. The references that are given are said to be chosen on the basis of their importance or historical interest, but many references of exceptional importance and historical interest have not been included. Scattered throughout the monograph are quotations of statements of eminent scientists. These are pleasing but do not add greatly to the value of the publication. The book contains a number of useful tables and an appendix that lists the chemotherapeutic agents together with their trade names and therapeutic indications for their use.

Handbuch der inneren Medizin. Begründet von L. Mohr und R. Staehelin. Herausgegeben von G. v. Bergmann, W. Frey und H. Schwiegk. Band 7: Innersekretorische und Stoffwechsel-Krankheiten. Teil I: Innersekretorische Krankheiten, Fettsucht, Magersucht. Bearbeitet von F. Bahner et al. Teil II: Stoffwechsel-Krankheiten. Bearbeitet von E. Grafe et al. Fourth edition. Cloth. 360 marks; 288 marks. Pp. 1163, with 190 illustrations; 1171, with 168 illustrations. Springer-Verlag, Reichpietschufer 20, (1) Berlin W. 35 (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, Germany, 1955.

Although this is described as the seventh volume of the rejuvenated Mohr and Staehelin system of medicine, it consists of two rather weighty tomes that will be described separately. Part 1 covers the diseases of the glands of internal secretion and also obesity and emaciation. After an introductory chapter by Prof. Arthur Jores, which discusses the historical development of our knowledge of the glands of internal secretion, there are sections discussing the diseases of each endocrine gland. Professor Jores discusses the diseases of the hypophysis, the adrenals, and the sex glands; Professor Bansi covers diseases of the thyroid; Professor Fanconi considers diseases of the parathyroid glands; and Professor Bahner describes the causes and effects of obesity and of emaciation. The volume contains a discussion by Docent Doctor Zimmerman on the chemistry and metabolism of the steroid hormones. The second part discusses the diseases of metabolism. There is a lengthy section on the diseases of carbohydrate metabolism by Prof. E. Grafe and Prof. J. Kühnau, which covers diabetes mellitus, so-called renal diabetes, spontaneous hypoglycemia, and hyperinsulinism. Professor Grafe has a special section on disorders of glycogen storage. Profs. W. Löffler and F. Koller contribute a lengthy section on gout, and Docent G. Schettler a section on lipid abnormalities. Prof. A. Vannotti discusses the porphyrin disease, and Docent Kurt Schrier covers disturbances of the protein metabolism, phosphaturia, oxaluria, and oxalosis.

The arrangement of the material varies somewhat. There is usually a descriptive definition and sometimes a historical survey. The etiological factors; the general clinical findings (often with illustrative case reports); the different types of the disease; special features; the diagnosis (including the use of technical methods); the effects on special organs; the complications; the frequency and geographical distribution; the pathological anatomy, physiology, and chemistry; and the diagnosis, prophylaxis, and treatment all receive consideration. Extensive bibliographies of each subject follow the articles, and the volume ends with author and subject indexes. The articles are clearly written and comprehensive. The books are substantially bound in blue cloth, the paper is of good quality, and the type clear and easily readable. There are many graphs and excellent photographic illustrations in black and white of patients, roentgenograms, and gross and microscopic pathological lesions. There are a few colored plates where these are necessary to bring out special features. In brief, the books are a mine of well-documented information on the subjects covered and appear to contain no serious errors of omission or commission.

Moto-Kinesthetic Speech Training. By Edna Hill Young and Sara Stinchfield. Hawk. Cloth. $5. Pp. 176, with 43 illustrations. Stanford University Press, Stanford, Calif.; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, England, 1955.

As late as 1952 there still lingered in medicine the superstition that speech defects might be caused by congenital shortness of the frenulum of the tongue and could be prevented or cured by cutting this normal structure. Only one who has actually seen an unnecessary operation of this sort on a newborn baby can fully appreciate the magnificent work of recent years whereby this misconception, with many others, has been cleared up. This book summarizes the work already done by pioneers in the field, explains the many causes of speech defects, and illustrates the methods whereby children with various handicaps can be helped to speak. Sometimes the trouble has been simply a lack of people to talk to, and sometimes it is cerebral palsy, cleft palate, or deafness. Sometimes the acquisition of even a single word is a triumph, while at other times the remedy is simple, but in many cases the effect of treatment on a child's home life and social development is immense. This book deserves praise for accurate detail, balanced consideration of available techniques, excellent illustrations, interesting case histories, a stimulating bibliography, and its index. Since speech therapists now working in our schools need the understanding and cooperation of local physicians, it is recommended that every physician who has contacts with school children make an effort to see this book.

Diseases of Infancy and Childhood. By Wilfrid Sheldon, C.V.O., M.D., F.R.C.P., Physician-Pædiatrician to Her Majesty the Queen, London. Seventh edition. Cloth. $10. Pp. 804, with 231 illustrations. Little, Brown & Company, 34 Beacon St., Boston 6; J. & A. Churchill, Ltd., 14 Gloucester Pl., Portman Sq., London, W.1, England, 1955.

In the present edition of this textbook, the author has stated that it was intended to help the undergraduate student and practicing physician but not to compete with the larger reference works. It contains only short descriptions of the subjects, and no student of pediatrics would be happy with the amount of information given. This textbook might come in handy for practitioners, since it is easy to read and to understand. It could also be used effectively in teaching nurses.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

QUERIES AND MINOR NOTES

TREATMENT FOR TAENIA SAGINATA

To the Editor:—*Please outline a treatment for taenia saginata of two years' duration in a 15-year-old boy. Atabrine produces severe nausea.*

M.D., California.

Answer.—Quinacrine hydrochloride (Atabrine) may not cause severe nausea if given with sodium bicarbonate, 1 gm. in each 250 ml. of water. If quinacrine cannot be used, either of the following methods of treatment should be effective: (1) hexylresorcinol crystals (not crystoid capsules) 1 gm. and powdered acacia 2 gm., emulsified in 40 ml. of water; or (2) oleoresin of aspidium 6 ml. (must be reasonably fresh) and powdered acacia 8 gm., emulsified in 60 ml. of water. For effective use (i. e., to obtain the head of the worm) either of these mixtures should be administered by duodenal tube. Preparation of the patient should include: a light evening meal the night before treatment, with no roughage; no alcohol; sodium sulfate 15 to 30 gm. in water as a laxative at bedtime (to remove mucus from about the head of the worm); no breakfast, except water; intubate duodenum as early as practical—check for location of bulb by suction and by fluoroscopy if practical; administer anthelmintic through tube; remove tube; after two hours give purge of 30 gm. of sodium sulfate in water; and collect all intestine discharges carefully after anthelmintic until worm is passed. Search for head in later discharges if it is not found with main portion of worm.

LYMPHEDEMA FOLLOWING MASTECTOMY

To the Editor:—*Is there any new treatment for surgical lymphedema following radical mastectomy? A patient was 40 years old and had a scirrhous carcinoma of the left breast with metastasis to neighboring lymph nodes. The mass in the breast itself was centrally located. The lymphedema seems to be somewhat progressive, and I have been unable to demonstrate any new metastasis in the axilla.*

S. W. Scorse, M.D., Joplin, Mo.

Answer.—There is really no new approach to postoperative lymphedema of the arm. There is always the probability that it represents recurrent or persistent disease in the axilla. In this event x-ray therapy would be indicated. Elevation of the arm at night with overhead traction apparatus along with compression dressings on the arm usually reduces the size considerably. The compression dressings should be worn during the day as much as possible, and reelevation of the arm at intervals during the day also helps. When the lymphedema is extreme and there is no evidence of recurrent disease, the skin of the arm can be removed in long strips with an electrodermatome, the subcutaneous tissue excised down to fascia and the skin reapplied as grafts. While this procedure is disfiguring, it will reduce the discomfort and disability in the arm greatly.

INHALATION OF ZINC STEARATE POWDER

To the Editor:—*What are the hazards to rubber industry workers from the inhalation of zinc stearate powder or contact of this powder with the skin?*

Sherman L. Watson, M.D., Meadville, Pa.

Answer.—Apparently the question as to the desirability of substituting zinc stearate in the place of soapstone or talc in the rubber industry first arose about 1931 (*J. A. M. A.* 96:1818 [May 23] 1931). Some 131 instances of zinc stearate poisoning in infants were investigated by the American Medical Association committee that reported in The Journal (84:750 [March 7] 1925). This report indicated the occurrence of bronchitis and bronchial pneumonia, attributed to the combined and chemical action of zinc stearate, with a 21% mortality. It is presumable that in some instances, gross quantities of zinc stearate were involved through such accidents as the removal of the zinc stearate lid. Zinc stearate now is little used as a baby powder. Few cases are known in industry, but from Finland Drs. Norro and Uotila reported a fatality in a rubber plant worker after 29 years of employment and gave a general presentation of the harmful properties of zinc stearate in industry. Still the possibility exists that if high concentrations of zinc stearate dust arise in industry, pneumonitis could arise. Otherwise this dust is conducive to low-grade inflammation along the respiratory tract. If the use of zinc stearate in the rubber industry for dusting stock is highly desirable, this can be carried out through mechanical devices in the presence of exhaust systems so as to eliminate any substantial exposure for workmen. Dermatitis from zinc stearate is not expected.

LOOSE CARTILAGE IN KNEE JOINT

To the Editor:—*What is the accepted surgical treatment today for loose cartilage in the knee joint?*

Frank E. Wilson, M.D., New London, Conn.

Answer.—The best surgical treatment is to make an incision adequate to expose the injured meniscus. This can be an oblique incision over the articular space starting medially or laterally to the quadriceps tendon. In this way there is no muscular injury, and with retraction, the inner surface of the joint can be seen, particularly when the knee is flexed. By rotating the leg, one can see the cruciate ligaments; only the posterior horn of the medial meniscus is not visible. If it is essential to see the posterior part, a second incision may be made posterior to the collateral ligament. If there is any doubt, the entire meniscus should be removed. Occasionally, the lesion is evident, and it is apparent that it would explain all the symptoms. In this case, only the injured section need be excised.

ABDOMINAL SYMPTOMS IN DIABETES

To the Editor:—*A very obese woman with unsuspected and untreated diabetes had what appeared to be acute appendicitis. The fasting blood sugar level was 210 mg. Study of the urine showed 4+ sugar, a trace of acetone, and 4+ albumin. The history and physical findings were typical of acute appendicitis with a blood count of 18,000 white blood cells per cubic millimeter, 82% polymorphonuclear cells with 15 stabs. After medical consultation, an operation was performed. When the peritoneal cavity was opened, moderate amount of turbid fluid escaped, and the rest was aspirated and a culture taken (no growth after 72 hours). The peritoneum appeared congested. The appendix was small and trophic with some periappendicitis reaction. There was much edema of the cecum, and retroperitoneal tissues including perinephric edema. Could these physical manifestations and pathological findings be accounted for by her untreated diabetic state? Her blood on standing showed a serum that was grossly almost pure white, due no doubt to a high lipid content. The patient's postoperative condition is good. Could I have a discussion of diabetes simulating a surgical abdomen?*

M.D., California.

Answer.—This obese woman had diabetes because she showed glycosuria and hyperglycemia. Lacking knowledge about the diacetic acid and the presence or absence of showers of casts in the urine, the percentage of carbon dioxide, nonprotein nitrogen, and cholesterol in the blood, as well as the body temperature, it is difficult to decide whether the degree of acidosis was sufficient to account for the notable amount of

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

albumin, a blockage of excretion of diacetic acid, and the accompanying leukocytosis so common in diabetic coma. Conceivably latent diabetes in a fat woman, who had radically restricted carbohydrate for some time to reduce weight, could stimulate the condition described including the lipemia that is not present in the usual case of diabetic coma. Although symptoms and signs suggested acute appendicitis, the operation did not confirm that diagnosis and the height of the leukocytosis counts is also against it. Lipid nephrosis is not accompanied by acute abdominal symptoms. The edema of the tissues at operation is not easily explained, because edema is most rare in acidosis of diabetic origin. In diabetic patients, the latency of symptoms and signs of abdominal infections particularly in the appendix and gallbladder is notorious. Repeatedly an appendix or a gallbladder can explode in the ward while the patient is under observation for an entirely unrelated disorder. In diabetic coma, abdominal symptoms are so common that in a considerable percentage of the cases, a surgical consultation is almost routine and if in doubt exploration of the abdomen carried out. A pseudoperitonitis was recognized as long ago as in Kussmaul's original description of coma. The abdominal distress, Hippocratic facies, the tense abdomen, and the leukocytosis conformed closely to appendicitis, but in Borning's case the symptoms recurred in several subsequent bouts of coma although the appendix had been removed several years before.

INFANT FEEDING

To the Editor:—*What are the advantages or disadvantages of certified milk in formulas for infant feeding and the advantages or disadvantages of the addition of carbohydrate in preparing the formula? What carbohydrate is preferred?*

M.D., New York.

Answer.—Certified milk is the cleanest and most uniform in composition of any milk. It has done a great deal in raising the standards of milk production. It is expensive, and it should be pasteurized—it is usually sold raw. In localities where the general milk supply is below standard, certified milk should be used if obtainable. If the general milk supply is of high quality certified milk is not necessary. Cow's milk contains only about 4.5% of sugar. A baby can usually take with advantage more carbohydrate than this. It usually makes little difference which sugar is used. At the present time corn syrup, which contains dextrose, dextrins, and maltose, is the most popular. Starch, in the form of cereal, can be added at the third month.

TINEA CAPITIS

To the Editor:—*In this area, I have been confronted with the question of whether it is permissible to allow children infected with tinea capitis to bathe in public swimming pools. I have advocated the use of a swimming cap, but I wonder if such a restriction is adequate or unnecessary.*

William Snyder, M.D., San Antonio, Texas.

Answer.—The better course would be not to permit an infected child to use a public swimming pool. Even though the chance of transmitting the infection in a swimming pool is remote, it is still theoretically possible, and a tightly fitting swimming cap, though it would be helpful, would not be certain to give complete protection.

HIGH BLOOD CHOLESTEROL

To the Editor:—*Has any effective means been found for lowering high level of blood cholesterol in individuals presenting significant changes associated with arteriosclerosis?*

M.D., California.

Answer.—High plasma cholesterol levels can be lowered more or less effectively by (1) a low fat, low cholesterol diet containing not more than 60 gm. of fat per day or (2) the addition of plant sterols to a normal diet. The use of these procedures is still in the experimental stage, as far as long-term therapy in man is concerned. Preliminary reports are favorable but use should be deferred until the evidence is confirmed on long-term trials.

ULTRASONIC THERAPY

To the Editor:—*Is there any danger in ultrasonic treatmen*
tissue that has been treated to tolerance with x-ray
radium? *J. E. Gardner, M.D., Corpus Christi, Texa*

Answer.—There have been reports in the medical litera
on the combined use of ultrasonic and x-ray therapy for
treatment of dermatological conditions. There is as yet, howe
no clear cut evidence to show that their combined use has
particular advantage over the use of x-ray therapy alone w
it is indicated or ultrasonic therapy alone in the conditions
which it is useful. Ultrasound is primarily useful for the relie
pain and tenderness in certain inflammatory affliction of con
tive tissues, such as seen in osteoarthritis, humeroscapular
arthritis, bursitis, and some cases of rheumatoid arthritis. U
sound on the other hand is contraindicated in the presenc
malignancy, whereas x-ray therapy may be the treatmen
choice. Since the application of ultrasound is contraindic
in the presence of malignancy, it should not be used in conj
tion with x-ray therapy applied for the treatment of carcin
The real value of its combined use with x-ray therapy for
dermatological lesions has not been established.

IODIZED SALT AND TUBERCULOSIS

To the Editor:—*Does the small amount of potassium io*
ingested by adding iodized salt to the food really aggra
tuberculosis? I read that p-*aminosalicylic acid has a go*
genic effect on some patients. Would not iodized salt
tagonize this goitrogenic action? Does not the food in ce
areas contain as much or more potassium iodide than
iodized salt (1:100,000)?

Walter Weinberger, M.D., Cresson,

Answer.—The minute amount of potassium iodide that
be ingested through the use of iodized salt is of no signific
in human tuberculosis. Indeed, a distinguished group of ph
ologists recently expressed the opinion that no good evid
existed for a deleterious effect on tuberculosis even from
stantial doses of iodide. The goitrogenic action of *p*-am
salicylic acid cannot be reliably prevented by iodide. Desic
thyroid, 30 to 60 mg. per day after meals, should effect
prevent the development of goiter from *p*-aminosalicylic
The iodine content for food, of course, varies greatly wi
place of origin. In general, in nongoitrous areas, common
contain at least 10 to 100 mcg. of iodine per kilogram o
weight. A normal diet, therefore, should provide as muc
more iodide than that supplied by iodized salt, which con
10 mcg. of iodide per gram of salt.

HEMOLYTIC DISEASE OF THE NEWBORN INFA

To the Editor:—*Having once had an erythroblastotic i*
due to **A-B-O** *incompatibility, what are a mother's chanc*
having a similarly affected infant in subsequent pregnan
Does this disease follow a pattern similar to Rh incom
bility in that later infants are more severely affected?

Andrew F. Turano, M.D., Middletown, Con

Answer.—Less than 10% of all severe cases of hemo
disease of the newborn infant are caused by incompatibili
the **A-B-O** factors. A large proportion of these cases occ
primipara. There may be no increase in severity with subseq
pregnancies, and there is a good chance of these children b
normal. It is difficult to predict the disease in the expected i
from either the variety or titer of antibodies in mother's se

BLOOD TYPES

To the Editor:—*Please tell me what type of blood is re*
mended for group AB recipients when group AB bloo
not available? *Sam D. Cummins, M.D., Shreveport, L*

Answer.—It is estimated that the serums of 3% of g
A_1B individuals contain anti-O and that anti-A_1 is presen
25 to 30% of group A_2B serums. This constitutes a theore
argument for giving blood of group B to the AB recipient w
type specific blood is not available. However, experience
shown that low titer group O blood is satisfactory. Grou
blood is the third choice.

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MEDICAL SCHOOL DEPARTMENT OF GENERAL PRACTICE

Robert A. Davison, M.D., Memphis, Tenn.

The general practice department of the University of Tennessee was developed on the premise that medical schools should give students some actual orientation and experience in the various forms of medical practice. The teaching of all the specialties has been traditional, but general practice, which is the most widely practiced of all fields of medicine, has been totally neglected. The established specialty clinics and medical services within the schools and teaching hospitals are highly departmentalized and in nowise resemble the conditions found in general practice. Further, in years past, the faculty of medical schools had, to a large extent, conducted general practices before specializing, but today practically none have had any experience with this form of medical care. Recognizing this, many medical schools have critically evaluated their curriculums with the purpose of offering some form of orientation and experience in general practice to the student. The specialty departments have developed and grown with the historical growth of the medical school, but there has been no such precedent set for the organization of a department of general practice. This has offered some problems in their establishment and the curricular position they should fill. The resulting curricular changes have included such teaching approaches as preceptorships, family care programs of varying nature and duration, general practice lectures, and general practice clinics.

At the University of Tennessee a large number of our students are interested in going into general practice, and we feel that this interest should be maintained and encouraged. Much too frequently the student enters medical school "social-minded and leaves lesion-minded." He is taught "how to attack a disease but not how to approach a patient." He examines a white female, age 30, gravida 3, para 3, rather than a 30-year-old white mother of three children. He enters medical school with the humanistic desire to treat people and alleviate suffering. He has never thought of patients as other than individuals in a family setting. Yet upon entering school he is soon taught to fractionate this "indivisible individual" into systems of anatomy and physiology, biochemistry and pathology. The patient soon loses her identity in the mind of the student and becomes a complicated and intricate assembly of organs and systems. To say to the new medical school applicant, "We must consider the patient as an individual with a family and social and economic environment" would seem to him a ridiculous stress of the obvious. But by the time he is a senior student he has been so thoroughly "brainwashed" that to consider the patient as other than a fleshy container for pathology too often seems unscientific and inappropriately idealistic. This we now recognize as a glaring danger in our teaching methods. Medical schools have been training medical scientists and biologists rather than doctors. The medical school should be a professional school as well as a technical school.

TEACHING THE FAMILY DOCTOR'S APPROACH

The student must be taught the humanities as well as the science of medicine. He must have firsthand experience in observing and evaluating the home and social environment in which disease finds its initial expression. The modern concept of preventive and curative medicine includes all phases of health and disease. To understand the total illness of a patient one must be familar with the socioeconomic environment in which it found its origin.[1] The family doctor's approach to sickness has been traditionally characterized by including all these factors, well leavened with understanding, compassion, and properly directed sympathy.

Recent trends in teaching at the undergraduate level express an interest in orienting students to the family doctor's approach to illness. Approximately two-thirds of our medical schools have developed preceptorships, general practice clinics, family care programs, and/or lectures on general medical problems oriented to the total medical care situation in an effort to widen the therapeutic perspective of the student. This is a result of a more total concept of illness being recognized by the faculty councils of our medical schools. The basic approach to practice as exemplified by the general practitioner as a family physician is being accepted as a sound and needed therapeutic approach long overdue in its curricular recognition. The family doctor

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From the University of Tennessee College of Medicine.

Read before the Section on General Practice at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 7, 1955.

[1] Packer, H.: Family Care Programs in Medical Education, South. M. J. 47: 689-695 (July) 1954.

is not to be considered as a special type of medical sociologist who functions as a diagnostic agent for treatment centers elsewhere. He differs admirably and essentially from the almost strictly hospital and office specialist by his family orientation to illness. This difference has always been his birthright. It must be fully recognized that he is also a medical scientist qualified to completely manage 85% of the illnesses to which the public is liable, and the student must be encouraged and trained to properly fill this vital place in American medicine.

GENERAL PRACTICE CLINIC

In September, 1951,[2] the faculty council of the University of Tennessee approved the addition of a general practice clinic to the outpatient teaching curriculum. The attendance at this clinic, which is held during the last two quarters of the senior year, is required of all students. It was physically set up in the outpatient department division and staffed entirely by general practitioners. This gave the students an opportunity to associate with family doctors at the student-faculty teaching level and to observe their approach to patients. The student interested in going into general practice had for the first time a faculty advisor who was familiar with this field of medicine and who could broaden his knowledge and understanding of family medical care.[3]

Clinic Equipment.—The clinic is organized and equipped as a complete and self-contained unit in such a manner as to resemble the diagnostic and therapeutic facilities available in a good general practitioner's office. Separate examining rooms are equipped with examining tables, stools, chairs, and writing desk, permitting the student and patient total privacy during the history and physical examination. If, during the examination, certain laboratory procedures seem indicated, the clinic also has a small laboratory staffed with a technician through which these determinations can be obtained. Determinations not routinely done in the lab, but which may be indicated in the complete evaluation of the patient, are referred to other laboratories in the hospital, much as might be done in actual practice. The student is instructed in numerous diagnostic and therapeutic procedures that lend themselves to office practice. Time is taken in the clinic to observe the student while he actually applies what he has learned in his specialty lectures and clinics. An electrocardiogram is available for diagnostic confirmation on cardiac diseases when desired. A complete x-ray and darkroom unit is in the clinic, and the students are instructed in the taking of radiographs in a manner expected in office practice. A minor surgery room is also equipped for office surgery. Here, the students themselves, under the supervision of the staff, do biopsies, suture lacerations, and perform whatever procedures might be indicated. Diagnostic procedures such as sigmoidoscopy and indirect laryngoscopy are performed by the student when indicated. A microwave diathermy machine is available for indicated cases, and the student is instructed in its proper use. Many other procedures characteristically done in the general practitioner's office are demonstrated to, and done by, the student.

Purpose of Clinic.—One of the objectives of this clinic is to orient the student toward the total problems of his patient and how they bear on the cause of his disability and his response to treatment. An effort is made to make the student patient-oriented rather than disease-oriented. A maximum of 20 patients are selected for the clinic session each day. The selection includes five medical cases, five major or minor surgical cases, five gynecologic cases, three pediatric cases, and two dermatological cases. No effort is made to select patients with purely psychosomatic problems, but a high percentage of them have such conditions as an overlay of their disability. In this manner the student sees a good cross section of the types of illnesses with which the general practitioner is daily confronted. Too, unlike the other clinics, this clinic does not let the student know in advance of clinic hours whether his patients will present pediatric, gynecologic, medical, or other problems. He must correlate his specialty training to the problem at hand and adjust it to the needs of the patient. The student is required to do a complete history and physical examination within approximately an hour on all new patients. This does not include the time required for special diagnostic studies he may wish to do. Patients are given an appointment to return to the same student for follow-up care.

FAMILY CARE PROGRAM

The teaching objective of the department of general practice—the comprehensive medical care of the patient and his family—could not be fully met through the general practice clinic. It did not offer the student the opportunity to practice medicine in the home and to observe the environmental background of his patient's illness. To offset this deficiency, a family care program was added in May, 1952.[4] This program was designed to permit the student to see, live, and practice family medicine by assigning him a family for the last 12 months of his school curriculum. Equipped medical bags are made available to him for house calls, and the general practice clinic functions as his private office from 4 to 10 p. m. daily. He makes appointments with his patients for all examinations and treatments that lend themselves to office management. If necessary, he hospitalizes his patients and follows them while they are in the hospital.

Through these arrangements the student is more than just an observer; he functions in every manner as the family physician. He makes house calls and office appointments, determines the diagnosis, and institutes treatment, all under the intentionally unobtrusive but consistently present supervision of the general practice staff. Great effort is made not to destroy or attenuate the professional doctor-patient relationship established by the student. When the patient accepts the student as his family physician, the student realistically reacts to this responsibility with an interest and enthusiasm not seen in his usual outpatient work. He becomes a private physician, keenly interested in all the factors that play a part in his family's medical problems. He becomes more than a medical scientist; he becomes a doctor, schooling himself in the art of medicine.

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[2] Davison, R. A.: A Medical School Department of General Practice: I. The General Practice Clinic, GP **10**:115-121 (Sept.) 1954.

[3] Packer H.: Symposium: Extramural Facilities in Medical Education: General Practitioner Supervision, J. M. Educ. **28**:12-15 (July) 1953.

[4] Packer, H., and Sanford, C. H.: The Family Care Program of the University of Tennessee College of Medicine, J. Tennessee M. A. **46**: 49-51 (Feb.) 1953. Davison, R. A.: A Medical School Department of General Practice: II. The Family Care Program GP **10**:118-122 (Oct.) 1954.

DOCTOR-PATIENT RELATIONSHIP

One hot day last summer student Eldridge was seeing one case of diarrhea after another in the pediatric clinic. He verbally expressed that he had seen enough diarrhea to last him for the next five years. When he got out of the clinic, a call from his "family" was waiting. The baby in the family had diarrhea. He immediately signed out a medical bag and hurried off to his house call saying, "That's my baby; I delivered it, and there's nothing going to happen to that kid." The small child in student Grogan's family had an accident and was brought into the emergency room. Student Grogan was in class at the time. The child was seen by the intern and the pediatric and orthopedic resident while its mother paced the floor. The child was admitted to the hospital, and the mother continued her restless steps. When student Grogan arrived, she was heard to comment, "Now that Dr. Grogan is going to see my baby and look after him, I can rest in peace. I'll go home and nurse the little one." The intern and residents meant nothing to her, but her family student doctor had developed a relationship that will not be soon forgotten by either. In the back row of the audience at graduation, a mother was seen holding a 6-week-old baby. Our medical-social worker recognized them as student Lunceford's family. She spoke to the woman. The woman explained, "My family doctor is graduating, and he delivered this baby, which was named Emmett Lunceford Jeans after him. When the baby gets older I want to be able to tell him that he went to Dr. Lunceford's graduation." Many such stories and instances come out of our family care program.

Once weekly, during both the 10th and 11th quarters, an informal family care conference is held, at which time the students discuss with the staff the preventive, therapeutic, and rehabilitative medical problems encountered during the course of their functions as family doctors. Smaller quarterly private conferences with a member of the staff are also held. Of course numerous "in the corridor" and "on the street" type conferences occur between the student and staff members. All the conferences and stories encouragingly demonstrate that we are accomplishing a patient-oriented attitude in the student; he is experiencing and learning medicine comparable to that which he will later practice. We feel that one of the important factors in the success of this program is allowing the student to assume supervised but full responsibility for the medical care of his family for a period of 12 months. If the student is allowed to be only an observer of the family environment, as his medical knowledge increases and the family's confidence in him enlarges, both will become frustrated because the student is not permitted to function as a truly helpful family physician. The doctor-patient relationship soon suffers to the point of not existing at all. The student becomes disinterested, and the family loses confidence in him; the whole stimulus for actively learning family medicine is lost. The situation becomes sterile of training value. This is the reason we believe the student should have the opportunity of diagnosing his patients' conditions and of treating his patients through home, office, and hospital arrangements.

FUNCTION AND VALUE

Our department of general practice, staffed entirely by general practitioners who hold university faculty appointments, is a completely autonomous department within the medical school, and credit for all courses offered by the department is required for graduation. The department's function is to supplement, not replace, the specialty teachings. Its value is in correlating and integrating the specialty training of the student in the overall care of the patient. The student comes to recognize the qualified general practitioner as a member of the profession, respected by his medical school as one qualified to teach and hold faculty appointments along with his specialist colleagues. He begins to view general practice as another field of medicine, honorable and worthy enough for his selection. He comes to know the background of disease through observing his patients for a full year in their natural environment. He is given an opportunity to correlate his technical knowledge of medicine with the natural setting of illness and to evaluate emotional problems of both children and adults from the vantage point of the family surroundings, which he comes to know well. He learns through experience the many factors that produce disease and retard healing.

874 Union Ave. (3).

Control of Eclampsia.—Toxemia of pregnancy has now displaced sepsis as the first cause of maternal mortality, and its severity is in some way linked with malnutrition, some of the worst cases occurring in those who are very undernourished; but other matters need consideration as well. The remarkable work reported by Hamlin (1952), from Australia, showing that eclampsia is largely a preventable disease, was partly the result of a most careful control of diet and weight gain in pregnancy; a low-carbohydrate and low-salt diet with a high protein and high vitamin content was an important aspect of the measures that were so successfully taken in Sydney to control this very serious disease. This was important work which showed the benefit that could result from close dietetic supervision of the pregnant woman. It is my view that we do not pay nearly enough attention to weight gain in pregnancy. A gain of 30 lb. (13.5 kg.) in the nine months should be the top limit of normal, and in many cases this figure should be substantially less—very much less if the patient is overweight. Some patients, indeed, should not gain any weight during pregnancy, and for these some reducing diet with sufficient of the essential food factors for the mother and her fetus may be required. Obesity in pregnancy is common enough and not without its dangers, especially if any active obstetrical or other treatment is required. Such patients may be very difficult to examine and, as a result, such conditions as mal-presentations, fetal abnormalities, pelvic tumors and contracted pelvis may be overlooked; the acute abdomen is more difficult to diagnose, anesthesia is more hazardous, and the operation and postoperative care more complicated. For over-weight patients a reduction in calorie intake, mostly by a reduction in carbohydrates, is indicated.—C. S. Russell, M.D., Diet in Pregnancy, *The Practitioner,* July, 1955.

STUDIES OF Rh SENSITIVITY AFTER REPEATED INJECTIONS OF SALK VACCINE

Neva M. Abelson, M.D., Robert M. McAllister, M.D., Arthur Greene, D.Sc.
and
Lewis L. Coriell, M.D., Philadelphia

In the last two years many physicians have been concerned that the repeated injection of Salk vaccine prepared from virus grown in monkey kidney tissue might sensitize the recipient to Rh antigens. Concern has been mainly for the Rh-negative girl who might become sensitized to the **D** factor, which is the most potent of the Rh antigens, but the question of possible sensitization of Rh-positive individuals to other blood factors also can be raised. Wiener[1] has stated that such sensitization could not occur because the Rh antigens in the monkey are slightly different from those in man. This reassurance has not satisfied the majority of physicians, and indeed it need not, for the question is subject to experimental study. Francis and associates[2] quote two investigators who found no Rh antibodies in 32 Rh-negative children (Milzer) and 2 Rh-negative laboratory workers (Frisch) who received poliomyelitis vaccine prepared from virus grown in monkey kidney tissue. This report also is not completely reassuring because injection of Rh antigen does not always evoke an immediate antibody response, though it may later promote erythroblastosis fetalis during a pregnancy with an Rh-positive fetus. The most sensitive method of measuring Rh antigenicity is to inject the material into an individual already known to be isoimmunized and to measure the subsequent antibody response. It is the purpose of this article to report a detailed study of the Rh antigenicity of Salk vaccine.

MATERIALS AND METHODS

The Rh antibody determinations were done by the saline-albumin, trypsinated red blood cell, and Coombs techniques. After the trypsinated red blood cell tests and Coombs tests were completed, albumin was added to determine if any of the reactions would be enhanced by the presence of a protein diluent. All titrations in any one series were carried out by the same technician and read by a second technician. All technicians working on this portion of the project had had at least five years' experience in the blood-grouping laboratory of the Philadelphia Serum Exchange, and their work was known to be reproducible within at least a twofold dilution. Multiple pipettes were used in making serum dilutions. Anti-**D** titers were checked against standards supplied to manufacturers of Rh typing serums by the Division of Biologics Standards of the Department of Health, Education, and Welfare, National Institutes of Health. The titers reported are those obtained with the indirect Coombs method, with the exception of the anti-**E** titers. In this case, the end-points obtained by the Coombs technique were not so clear-cut as the results in saline solution, and the latter are therefore reported. Poliomyelitis neutralizing antibodies were determined in stationary, slanted trypsinated monkey kidney tubes using 100 tissue culture doses of strains of Mahoney, MEF-1, and Saukett.

Field Trial Specimens.—The paired serums of 100 Morris County, New Jersey, children were tested for the presence of Rh antibodies. These children had received, in the spring of 1954, two injections of 1 ml. each of Salk vaccine (lot 506) at 0 and 7 days, followed by a 1 ml. injection of lot 307 vaccine at 35 days. The paired serums tested were the one drawn before vaccination and the one drawn one week after the third injection of vaccine. None of these children showed any Rh antibodies or Hr antibodies in the prevaccination and postvaccination serums. However, as already stated, such examinations do not provide adequate proof of the safety of the vaccine insofar as Rh antigenicity is concerned.

Antigens in Monkey Red Blood Cells.—In production of Salk vaccine, Macaca mulatta (rhesus) and Macaca irus (cynomolgus) monkeys are used interchangeably, because the kidney epithelial cells from both species grow in tissue culture and support the growth of poliomyelitis viruses equally well. Pooled, absorbed human blood serums prepared commercially for blood grouping and Rh testing were found to react selectively with certain of these monkey red blood cells, as shown in table 1. The erythrocytes of 77 animals received from Okatie Farms in the spring of 1954 were tested with different lots of human anti-**A**, anti-**B**, anti-**C**, anti-**D**, anti-$\mathbf{D}^u$, and anti-**E** serums. Twenty-five additional animals were tested with anti-**c** and anti-**e** serums as well. As the results in table 1 indicate, there were 23 positive reactions with anti-**A** serum, 17 with anti-**C** serum, 16 with anti-**D** serum, and 21 with anti-**E** serum. There were no positive reactions with anti-**B** serum and none with anti-**c** and anti-**e** serums. If the monkey antigens were strictly comparable to human Rh factors, one would expect that at least the **E**-negative and **C**-negative cells would be positive to **c** and **e**. Moreover, many individual raw human serums will agglutinate red blood cells from rhesus and cynomolgus monkeys, regardless of blood group or Rh status. Therefore, results of such blood grouping tests as outlined above cannot be considered specific, and, although many of the blood specimens from monkeys used in vaccine production will cross react with human serums, the antigens, as Wiener[1] has stated, are different from those of man.

From the School of Medicine, University of Pennsylvania (Drs. Abelson, McAllister, and Coriell); the Children's Hospital (Drs. Abelson and Greene); the Woman's Hospital (Dr. Abelson); and the Camden Municipal Hospital, Camden, N. J. (Drs. McAllister and Coriell).

This study was supported in part by a grant from the National Foundation for Infantile Paralysis. The work done in 1947 to 1948, upon which a portion of this study is based, was supported by a grant from the National Institutes of Health, Public Health Service.

[1] Wiener, A. S., cited by Kumm, H.: The Present Status of Vaccines for the Prophylaxis of Poliomyelitis, Illinois M. J., **106**: 13 (July) 1954.

[2] Francis, T., Jr., and others: An Evaluation of the 1954 Poliomyelitis Vaccine Trials: Summary Report (with Appendix), Am. J. Pub. Health **45**: 1-51 (May, pt. 2) 1955.

PLAN OF STUDY

The failure to find Rh antibodies in serums of children who have received Salk vaccine may be due to the absence of significant amounts of Rh antigen in the vaccine. On the other hand, a detectable primary response to Rh factors is not easy to evoke in man. When sensitization is done deliberately in Rh-negative males, repeated injections of blood are usually necessary before antibodies begin to appear, and occasionally an individual fails to develop antibody after many injections have been given over a period of months or even years. However, once a person is sensitized to Rh antigens, the heightened reactivity persists, as with other antigens, even after detectable circulating antibody has disappeared from the peripheral blood. In such cases, subsequent injection of Rh antigen stimulates an immediate recall of antibody. Injection of poliomyelitis vaccine into such sensitized individuals would be a more delicate method of detecting small traces of Rh antigens than trying to detect a primary response.

TABLE 1.—*Reactions of Macaca Monkey Red Blood Cells with Human Antiserums*

Monkey Species	No.	Antiserum A	B	C	D	D^u *	E	c †	e †
Cynomolgus	35	8	0	0	2	0	0	0	0
Rhesus	67	15	0	17	14	0	19	0	0
Total	102	23	0	17	16	0	19	0	0
% positive	..	22.5	0	16.7	15.7	0	18.7	0	0

* Only D-negative specimens were tested with anti-D^u serum.
† 25 animals tested with anti-c and anti-e.

Two different groups of Rh sensitized individuals were available for study. The first group (A) was comprised of two women and six men. The women had been sensitized through blood transfusion and pregnancy and had been sterilized. The men had been sensitized through blood transfusion and subsequent injections of Rh-positive red blood cells. One of the men had had no injections of blood for four years; the remainder of the group had had injections of Rh-positive red blood cells within the preceding year. Four of the eight members of the group were sensitized to **D**; two to **C** + **D**, and one to **D** + **E**. The second group of individuals was composed of 16 men who had received repeated small injections of Rh-positive blood in 1947 to 1948. Thirteen of the 16 were known to be sensitized to Rh factors. Seven were sensitized to **D** and six to **C** + **D**. They had never received **E**-positive blood. Three of the men were not known to be Rh sensitized. These 16 individuals were divided into two further groups (B) and (C). Each group contained eight men. Of the eight men in group (B), two were sensitized to **D** and four to **C** + **D**. Of the eight men in group (C), five were sensitized to **D** and two to **C** + **D**.

Each of the three groups, (A), (B), and (C), received a different lot of Salk vaccine. Three 1 ml. intramuscular injections were given at intervals of 0, 7, and 35 days. Blood was drawn before the first dose and at regular (usually weekly) intervals for at least nine weeks. Vaccines were selected to give information on the product of three companies. The virus for lots 502 and 309 vaccine was grown at the Connaught Laboratories, Toronto, Canada, for the National Foundation for Infantile Paralysis, using a mixture of minced monkey kidney, growth medium, and virus in a Povitsky bottle that was continuously rocked on a shaking machine and harvested at the time of maximal virus yield. The formaldehyde solution N. F. (Formalin) inactivation of virus, testing, and bottling were done at Parke, Davis & Company, Detroit, in the case of lot 502 vaccine, and at Eli Lilly & Company, Indianapolis, in the case of lot 309 vaccine. The virus for lot 202 was grown and processed by the Wyeth Laboratories, Inc., Philadelphia, in bottles containing glass wool that permitted washing of the growing kidney cells three times to remove red blood cells and tissue debris before the seed virus was added to the bottles. This was the first commercially produced lot of Salk poliomyelitis vaccine. In table 2 the protein analysis of these three lots is presented. There were no significant differences among the results for the three lots.

The Rh antibody titers of group (A) before and following vaccination with lot 502 are presented in table 3. Seven of the eight individuals who received lot 502 vaccine still had detectable Rh antibody titers at the time of vaccination. After the injection of the vaccine, there was some Rh antibody rise in all of these individuals. Two showed at least a fourfold rise of anti-**C** titer, and all seven showed at least a fourfold rise to **D**^{u}. The one volunteer sensitized to **E** showed a twofold rise in anti-E titer, but this difference was within the range of technical error. The rise was most marked in the anti-**D**^{u} titers. One individual who received lot 502 vaccine (case 8) had not responded to previous attempts at Rh sensitization with whole blood, and he did not respond following the administration of poliomyelitis vaccine. After the follow-up period each of these volunteers was given a small injection of Rh-positive blood. There was no further detectable antibody response.

TABLE 2.—*Protein Assay of Poliomyelitis Vaccine, Milligram Per Milliliter*

Lot No.	Amino Nitrogen	Total Nitrogen	Nonprotein Nitrogen	Protein Nitrogen
309	0.064	0.216	0.176	0.040
502, sample 1	0.070	0.153	0.147	0.006
502, sample 2	0.070	0.155	0.143	0.009
202, type 1 *	0.058	0.151	0.113	0.038
202, type 2 *	0.065	0.166	0.115	0.051
202, type 3 *	0.065	0.159	0.113	0.046

* The results for lot 202 vaccine are presented on the three separate strain pools. The finished vaccine was made by combining equal parts of each virus type.

None of the eight volunteers who received lot 202 vaccine showed a significant rise of Rh antibody titer immediately following vaccination or in the nine-week follow-up period (table 3). One of the eight volunteers who received lot 309 vaccine had a rise of anti-C titer from 1:2 to 1:4, but this small change is not significant; neither is a change of 0 to U (undiluted) (table 3). With lots 202 and 309 vaccine, therefore, there was no evidence for the presence of Rh antigens. However, some explanation is necessary for the apparent response to lot 502 vaccine. This response might be due to the presence of Rh antigen in the vaccine, or it could be an anamnestic reaction. The latter explanation is made more likely by the fact that the group of volunteers used for testing lot 502 vaccine had been more recently sensitized than the other two groups, and most of them still had fairly high Rh antibody titers at the time they were given the poliomyelitis vaccine. As shown in table 3, these individuals developed a rise of Rh antibody only for antigens to which they already had circulating antibodies at the time the vaccine was given. The antigenicity of lot 502 vaccine was therefore retested by giving a series of three injections of this vaccine to each of the 16 volunteers who had previously been given lots 309 and 202 vaccine. Each of the 16 men received 1 ml. of lot 502 vaccine on Feb. 10, Feb. 17, and March 17, 1955. Blood was drawn for antibody determinations on Feb. 10, March 10, and March 31, 1955. All tests were negative for antibodies or only weakly positive, and there was no significant rise of antibody titer.

Table 3.—*Rh Antibody Production in Three Groups of Rh Negative Recipients of Various Lots of Salk Vaccine**

		Previous Anti-Rh Titer															
		End-Point				End-Point of Anti-Rh Titer at Vaccination				Maximal Anti-Rh Titer After Vaccination				Maximal Anti-Rh Titer After Blood Injection			
Case No.	Date	C	D	D^u	E	C	D	D^u	E	C	D	D^u	E	C	D	D^u	E
Lot 502 (Group A)																	
1	3/11/54	64	512	0	0	32	256	8	0	256	512	256	0	32	1,024	128	0
2	8/ 7/51	0	256	0	0	0	32	4	0	0	128	32	0	0	128	32	0
3	3/10/54	128	1,024	0	0	16	2,048	256	0	64	4,096	1,024	0	128	4,096	1,024	0
4	4/20/54	0	512	0	64	0	256	64	64	0	1,024	256	128	0	1,024	256	64
5	3/30/54	0	1,024	0	0	0	512	32	0	0	2,048	1,024	0	0	2,048	512	0
6	3/11/54	0	512	0	0	0	512	64	0	0	2,048	256	0	0	2,048	256	0
7	7/ 9/54	0	32	0	0	0	64	U	0	0	64	8	0	0	32	4	0
8	4/21/54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lot 202 (Group B)																	
9	3/19/48	U	U	..	0	0	0	0	0	0	U	0	0	...	...	...	...
10	....	0	0	..	0	0	0	0	0	0	0	0	0	...	...	...	...
11	1947-1948	0	0	..	0	0	0	0	0	0	0	0	0	...	...	...	...
12	3/ 5/48	U	U	..	0	0	0	0	0	0	U	0	0	...	...	...	...
13	4/ 9/48	0	32	..	0	0	0	0	0	0	U	0	0	...	...	...	...
14	1/15/48	0	U	..	0	0	U	0	0	0	U	0	0	...	...	...	...
15	3/ 5/48	U	4	..	0	0	U	0	0	0	U	0	0	...	...	...	...
16	1/23/48	16	256	..	0	2	8	0	0	U	4	0	0	...	...	...	...
Lot 309 (Group C)																	
17	....	0	0	..	0	0	0	0	0	0	0	0	0	...	...	...	...
18	3/11/48	4	128	..	0	0	2	0	0	U	0	0	0	...	...	...	...
19	12/11/47	0	U	..	0	0	U	0	0	0	U	0	0	...	...	...	...
20	11/17/47	0	U	..	0	0	U	0	0	0	U	0	0	...	...	...	...
21	....	0	U	..	0	0	U	0	0	0	U	0	0	...	...	...	...
22	3/19/48	0	U	..	0	0	0	0	0	0	U	0	0	...	...	...	...
23	1/ 9/48	0	U	..	0	0	U	0	0	0	U	0	0	...	...	...	...
24	3/11/48	64	64	..	0	2	U	0	0	4	U	0	0	...	...	...	...

* Each recipient received three injections. † U = undiluted.

These tests strongly suggested that there was no Rh antigen in lot 502 vaccine and that the response previously noted was, in fact, an anamnestic reaction in volunteers who already had considerable residual circulating antibody. An alternative explanation might be that the volunteers used for lots 309 and 202 vaccine had lost their hypersensitivity by reason of the long interval since their original sensitization to Rh antigens—a period of seven or eight years (table 3). This hypothesis was put to test by selecting 5 of the 16 men at random for an injection of Rh-positive blood. On April 21 these five received intravenously 0.25 ml. of a 50% suspension of whole **DE**-positive, **C**-negative human red blood cells in acid-citrate-dextrose solution. Antibody titers two weeks later (May 5) were elevated, as shown in table 4. It is obvious that each man promptly produced a high titer of Rh antibody and thereby demonstrated the *ability to respond to a specific antigenic* stimulus. Note also the anamnestic response to **C** in the two men who had previously had anti-**C** titers. Though the blood given was **E** positive, no anti-**E** agglutinins appeared in this group, which had not previously received **E**-positive blood. Another previously sensitized man, with a residual anti-**D** titer of 1:8, was given a series of five injections of lot 502 vaccine over a six week period. His anti-**D** titer varied between 1:8 and 1:16 over this period. After a one month rest period, he was given 0.25 ml. of **D**-positive blood. His anti-**D** titers two and three weeks later were 1:128 and 1:512, respectively, showing that he, too, was capable of responding to the specific antigenic stimulus, though he did not respond to injection of lot 502 vaccine.

Table 4.—*Response to One-Quarter Milliliter of Rh-Positive Blood, by Subjects Who Had Not Responded to Lots 309, 202, or 502 Vaccine*

	Anti-Rh Titer Before Injection				Maximal Anti Rh Titer After Injection			
Case No.	C	D	D^u	E	C	D	D^u	E
19	0	0	0	0	U	1,024	128	U
24	U *	0	0	0	16	512	64	0
20	0	U	0	0	0	256	0	0
15	0	0	0	0	U	512	128	0
18	0	0	0	0	128	4,096	128	0

* U = undiluted.

Additional studies with lot 502 vaccine were designed to show whether repeated injection of the vaccine, while not capable of stimulating Rh antibody production, might still be able to alter the reactivity of the host so that he would later respond more quickly to the injection of whole blood. For this study five Rh negative volunteers who had not been previously sensitized were given 1 ml. intramuscular injections of lot 502 vaccine at weekly intervals over a period of two months. Such a procedure, using whole blood, would be expected to sensitize at least 50% of Rh-negative volunteers. No Rh antibodies appeared. After a rest period of one month, two of the five were given 0.25 ml. of whole **D**-positive blood. After a rest period of six weeks, the third man was given whole blood. A fourth volunteer was given whole blood after a rest period of eight weeks. The fifth volunteer was not available for completion of these studies. No anti-**D** agglutinins were detected in the serums of these men two to four weeks after administration of blood.

The serums of the men who were not Rh-sensitized were also tested to see if there had been any stimulation of anti-**A** or anti-**B** production. No significant change was found. Comparative titrations were also done to determine if there had been any alteration in reactivity to monkey red blood cells. None was found. Most of the numerous serum samples from these volunteers have been tested for poliomyelitis neutralizing antibodies against types 1, 2, and 3. The results are of some interest in evaluating the apparent anamnestic responses and may be summarized briefly. All lots tested stimulated the production of poliomyelitis antibodies. Lot 502 vaccine was weakest, followed in order of increasing potency by lots 506, 307, 202, and 309.

COMMENT

Some of the vaccines used in these experiments were made by procedures that permitted incubation of monkey kidney fragments and red blood cells at 36 C (96.8 F), with agitation, for over one week. Since the exact nature of the Rh antigen has not yet been determined, it could be postulated that some of these cells might disintegrate and release their antigens into the liquid phase, pass through subsequent filtration, and appear in the final vaccine. Since the exhaustive tests described here failed to disclose Rh antigenicity in the vaccines made and processed by varying techniques, one can assume that they are either removed by the processing or that they are so unrelated to human Rh antigens as to be inconsequential, as Wiener originally stated. In fact, the studies suggest that both assumptions may be correct. At any rate, it seems probable that there is no danger of Rh sensitization of man by the Salk vaccine.

SUMMARY

A certain number of blood specimens from monkeys used in production of Salk poliomyelitis vaccine cross react with serums of human origin. These cross reactions, while not typical of human red blood cells, suggest the possibility of Rh antigenicity of the Salk vaccine. Therefore, the vaccine was subjected to detailed investigation with the following results. 1. The paired specimens of 100 children inoculated in the field trials with two different production lots of poliomyelitis vaccine contained no Rh antibodies. 2. Three production lots of Salk vaccine were injected into previously sensitized Rh-negative volunteers who had little or no residual circulating Rh antibody. No significant antibody response was observed. The hypersensitivity of these volunteers was later demonstrated by injection of whole Rh positive blood. 3. Rh negative nonsensitized volunteers received many injections of one vaccine lot followed by whole blood after a rest period. No sensitization by the vaccine was demonstrated. The tests used for this study are the most sensitive tests for the presence of Rh antigens that can be devised or imagined in the present state of knowledge, and they do not show even a trace of Rh antigens in the lots of Salk vaccine tested.

1740 Bainbridge St. (46) (Dr. Abelson).

VACCINATION-INDUCED POLIOMYELITIS IN IDAHO

PRELIMINARY REPORT OF EXPERIENCE WITH SALK POLIOMYELITIS VACCINE

Lawrence J. Peterson, M.S.P.H., Woodrow W. Benson, M.P.H.
and
Frederick O. Graeber, M.D., Boise, Idaho

This report is intended to present evidence confirming the presence of live virus in the poliomyelitis vaccine made available by the National Foundation for Infantile Paralysis for the inoculation of first and second grade school children in Idaho in the spring of 1955 and to present in a factual manner the impact that the use of such a vaccine has had on the state. The Francis report was accepted in Idaho as sufficient evidence that the Salk poliomyelitis vaccine was safe and potent. The vaccination program began in Idaho on April 19 and was discontinued on April 27. During that period approximately 32,000 first and second grade children received one injection of vaccine produced by Cutter Laboratories. Two lots of vaccine were used, E6058 and E6039.

Two cases of poliomyelitis were reported in Idaho on April 26, one resulting in a fatality. It was thought, of course, that some of the vaccinated children by chance alone would be developing poliomyelitis during the vaccination period, and these two cases at first were believed to be coincidental. On the morning of April 27, a report was received that in California cases of poliomyelitis were occurring in children who had received an injection of the vaccine, and later in the day information was received that the Cutter Laboratories had been asked by the United States Public Health Service to recall all of its poliomyelitis vaccine. Subsequent evidence has indicated that the vaccine that was used in Idaho contained live poliomyelitis virus. Some of the evidence in support of this viewpoint is presented in the following sections.

From the Idaho State Board of Health, Division of Public Health.

INCIDENCE OF CASES

Cases in Vaccinated Persons.—Within 26 days after the beginning of vaccination, 20 vaccinated children had developed clinical poliomyelitis, for an attack rate of about 1 to 1,600 injections. The average period of time between inoculation and clinical symptoms was 11.3 days, with a range from 5 to 26 days. Three of these children died, for a case fatality rate of 15%. Of the 20 patients, 11 showed paralysis in the arm of injection. Generally speaking, these 20 children had upper body paralysis, as compared to the usual predominance of lower body paralysis expected in this disease. The clinical impression of the examining physicians was that these 20 children were more severely involved than would be expected in an ordinary outbreak of the disease.

Objections were raised at first that, if all or almost all of the vaccine contained living virus, many more than 20 of the 32,000 children should have developed clinical poliomyelitis. This lack of an explosive outbreak is best explained on the basis of the unnatural method of infection by intramuscular injection.[1] A similar incidence of infection was observed by Kolmer in 1935 after the use of his live virus vaccine. Two other vaccinated children have developed clinical poliomyelitis. In these two cases the time elapsing between inoculation and clinical symptoms was 47 days and 90 days respectively. Because of the long interval between inoculation and illness, it is believed that these two children did not acquire poliomyelitis directly as a result of the vaccination. The only basis for this belief is the meager information available from monkey experiments. Monkeys inoculated intramuscularly with live Mahoney strain virus have an incubation period from 6 to 25 days.[2] It is possible that these two children developed no antibodies from the vaccine that they received. Table 1 gives some of the pertinent data concerning these 22 cases that occurred after vaccination.

TABLE 1.—*Children Developing Poliomyelitis After Vaccination, Idaho, 1955*

Case	Sex	Age	Date Vaccinated	Onset of Illness	Comment
1	F	8	4/19	4/23	Died; bulbar; left arm injection
2	F	7	4/19	4/26	Died; left arm injected and paralyzed
3	F	8	4/19	4/26	Quadriplegia; intercostal paralysis
4	M	7	4/19	4/27	Right arm paralysis; weakness left arm
5	F	7	4/19	4/28	Bulbar; left arm injected and paralyzed
6	F	7	4/19	4/29	Nonparalytic; left arm injected
7	F	7	4/19	5/1	Left arm injected; paralysis left leg
8	M	7	4/19	5/2	Left arm injected; nonparalytic
9	F	8	4/19	5/2	Left arm injected; nonparalytic
10	M	7	4/19	5/7	Died; bulbar; left arm injected
11	F	7	4/19	5/14	Left arm injected; paralysis left leg
12	M	6	4/20	4/26	Involvement of left leg
13	F	8	4/21 or 22	4/26	Left and right arm paralysis
14	F	5	4/21	4/27	Left arm injected and paralyzed
15	M	7	4/21	4/28	Left arm injected and paralyzed
16	M	7	4/21	4/29	Left arm injected; neck paralysis
17	M	7	4/21	5/1	Left arm injected and paralyzed
18	M	6	4/21	5/4	Nonparalytic
19	F	8	4/21	5/6	Nonparalytic
20	F	6	4/25	5/5	Left arm injected and paralyzed
21	M	7	4/19	7/15	Paralysis right leg; weakness left leg
22	F	8	4/22	6/7	Stiff neck and back

Cases Resulting from Familial Contact.—On May 12, the first case resulting from familial contact was reported and, as further cases developed, it became apparent that persons outside of the immediate family were contracting poliomyelitis as a result of contact with vaccinated children. By June 14, excluding cases in vaccinated persons, there had been 53 cases of poliomyelitis reported with onset occurring after the cessation of the vaccination program. In these 53 cases, 45 persons had well-established close contact with vaccinated children. Table 2 illustrates this relationship.

TABLE 2.—*Poliomyelitis Cases Showing Association with Vaccinated Children, Idaho, 1955*

Case	Sex	Age	Date Contact Vaccinated	Onset of Illness	Contact
1	M	13	4/19	5/4	Brother vaccinated
2	F	3	4/19	5/8	Brother vaccinated
3	F	9	4/19	5/11	Sibling—case 2
4	F	33	4/19	5/12	Daughter vaccinated
5	M	3	4/19	5/14	Sister vaccinated
6	M	20 mo.	4/19	5/16	Sister vaccinated
7	F	2	4/19	5/18	Contact with two vaccinated children
8	F	4	4/19	5/18	Playmate vaccinated
9	M	7	4/19	5/19	Playmate—vaccinated case
10	M	12	4/19	5/21	Siblings vaccinated
11	M	40	4/19	5/21	Daughter vaccinated
12	M	12	4/19	5/23	Brother vaccinated
13	M	1	4/19	5/23	Sister vaccinated
14	M	9	4/19	5/25	Schoolmates vaccinated
15	M	2	4/19	5/30	Brother vaccinated
16	M	34	4/19	6/1	Son vaccinated
17	M	4	4/19	6/1	Sibling vaccinated
18	F	10	4/20	5/11	Sister vaccinated
19	M	5	4/20	5/12	Playmate vaccinated
20	M	32	4/20	5/14	Child vaccinated
21*	M	35	4/20	5/15	Two children vaccinated
22	F	4½	4/20	5/16	Brother vaccinated
23	M	3	4/20	5/17	Sister vaccinated
24*	F	33	4/20	6/4	Two children vaccinated
25	F	5	4/20	6/4	Sister vaccinated
26	F	2	4/20	6/7	Two siblings vaccinated
27	M	6	4/20	6/9	Sister vaccinated
28	M	4	4/21	5/1	Brother vaccinated
29	F	20 mo.	4/21	5/8	Baby sitter's vaccinated children
30	F	4	4/21	5/13	Twin sister vaccinated
31	F	9	4/21	5/13	Niece vaccinated
32	F	14	4/21	5/28	Brother vaccinated
33	M	6	4/22	5/8	Sister vaccinated
34	F	4	4/22	5/8	Sibling—case 33
35	M	13	4/27	5/23 (?)	Sibling vaccinated
36*	F	6	Unknown	5/9	Associate of vaccinated children
37	F	10	Unknown	5/10	Sibling vaccinated
38	M	8	Unknown	5/14	Sister vaccinated
39	M	14	Unknown	5/18	Sibling vaccinated
40	F	3	Unknown	5/21	Sister vaccinated
41	F	22 mo.	Unknown	5/21	Vaccinated playmate
42	M	2¼	Unknown	5/23	Five vaccinated cousins
43	F	14	Unknown	5/29	Vaccinated relatives
44	F	21 mo.	Unknown	5/31	Sister vaccinated
45	F	6 wk.	....	6/2	Cousin of patient in case 42
46	F	16	....	5/12	Unknown
47	F	4	....	5/16	Unknown
48	F	11	....	5/16	Unknown
49	F	32	....	5/23	Unknown
50	F	3	....	5/25	Unknown
51	F	12	....	5/25	Unknown
52	M	18	....	5/25	Unknown
53	F	3	....	5/27	Unknown

* Died.

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[1] Kolmer, J. A.: Vaccination Against Acute Anterior Poliomyelitis, Am. J. Pub. Health **26**: 126-135 (Feb.) 1936. Leake, J. P., in discussion on Kolmer, ibid. **26**: 148 (Feb.) 1936.

[2] Bodian, D.: Viremia in Experimental Poliomyelitis: Viremia and Mechanism of "Provoking" Effect of Injections or Trauma, Am. J. Hyg. **60**: 358-370 (Nov.) 1954.

LABORATORY FINDINGS

Virus Isolation (Human).—Poliomyelitis virus has been isolated from the throat and stool specimens from 181 individuals. Only type 1 virus has been found. Virus has been isolated from vaccinated children who developed the disease, from vaccinated children who did not develop the disease but had a minor illness shortly after inoculation, from vaccinated children who showed no overt effects, from family contacts of children in all three of these categories, and from individuals who apparently had not been exposed to a vaccinated child nor to an individual given a diagnosis of poliomyelitis. It might be assumed that, if the outbreak of poliomyelitis hat occurred was of natural origin, an occasional type 2 or type 3 virus should be found.

TABLE 3.—*Poliomyelitis Antibody Survey, June, 1955, of 160 Vaccinated Children * from Bannock and Bingham Counties, Idaho*

Titer	1:1	1:8	1:16	1:32	1:64	1:256	1:1024	Total
Type 1	34	3	3	7	15	27	71	160
	21.2	1.9	1.9	4.4	9.3	16.9	44.4	100%
Type 2	21	10	12	14	19	25	59	160
	13.2	6.2	7.5	8.7	11.9	15.6	36.9	100%
Type 3	46	7	6	7	8	15	71	160
	28.8	4.4	3.7	4.4	5.0	9.3	44.4	100%

* Aged 6, 7, 8, and 9.

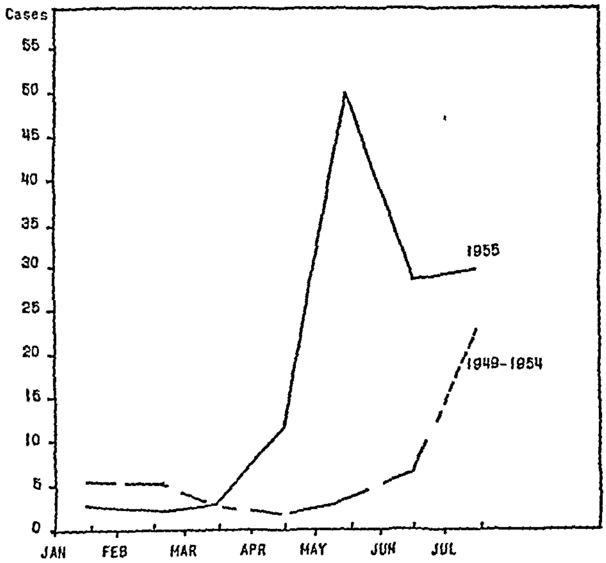
Virus Isolation (Animal).—On June 1, it was reported that Dr. Louis P. Gebhardt at the University of Utah Medical School had been successful in producing clinical poliomyelitis in a monkey injected with vaccine from lot number E6058. On June 15, Dr. Carl Eklund at the United States Public Health Service Laboratory in Hamilton, Mont., reported the isolation of type 1 virus from monkeys injected with the vaccine. Monkeys inoculated with vaccine from lot E6058 and lot E6039 developed clinical poliomyelitis. When autopsy was done, these monkeys showed typical microscopic evidence of poliomyelitis. Spinal cord emulsion produced growth on tissue culture in seven days, and type 1 virus was isolated from these cultures.

Virus Isolation (Tissue Culture).—On July 7, Dr. Eklund reported that tissue culture study of lot E6058 showed necrosis in 1 out of 50 test bottles used (500 cc. of vaccine was tested) and that this positive bottle showed type 3 virus. The isolation of type 3 virus was unexpected because all of the previous isolations, without exception, were type 1. The only apparent explanation of this phenomenon is that type 1 virus, because of superior growth qualities, masked the presence of type 3 virus. Frozen stool specimens obtained early in the study and additional vaccine are being restudied to see whether type 2 or type 3 virus can also be isolated.

Antibody Response.—A study of antibody response to the one injection of vaccine in a representative sample of the children receiving the vaccine has indicated that very high levels of antibody were obtained. In 160 consecutive blood specimens thus far analyzed from samples drawn approximately six weeks after inoculation in the Bannock County–Bingham County area, 78.8% of the children showed neutralizing antibodies to type 1, 86.8% to type 2, and 71.2% to type 3. Of the 160 children, 127 had an antibody titer of 1:1024 to one of the three types, 54 had an antibody titer of 1:1024 to two of the three types, and 8 children had an antibody titer of 1:1024 against all three types. Nine children showed no neutralizing antibody readings to any of the three types. The 1:1024 dilutions will later be run out to their endpoint. In table 3 there is given a summarization of the antibody status of the 160 children. The fact that these children have developed high antibody titers against all three types is additional evidence that the vaccine used in Idaho contained living type 1 and 3 virus and, in all probability, also contained live type 2 virus. The antibody response in these children who received one inoculation far exceeds the level reached in Idaho children in the field trial vaccine program of 1954, after three inoculations over a five week period.

IMPACT ON THE STATE

The first result of the vaccination program was the occurrence by May 14 of 20 cases among vaccinated children. In the past six years a total of only 16 cases of poliomyelitis had been reported through the end of May in children aged 6, 7, and 8. The greatest number occurring in any one of these years was four cases. The second effect was the occurrence of an unusually high incidence of cases in all age groups prior to the usual poliomyelitis season. From Jan. 1 to July 1, 100 cases of poliomyelitis were reported. In the six years from 1949 to 1954, there had been an average of 27.2 cases reported by the first of July. Two of these years, 1949 and 1952, were years of unusually high incidence of the disease. The year of highest incidence during this period was in 1949 when 48 cases occurred. The graph shown in the figure, comparing the number of cases by month this year with an average for the past six years, illustrates this difference in time of seasonal occurrence. The third observation was the fact that, whereas, in previous years the poliomyelitis occurring in the state has usually seemed to start in one of the trading areas and has then moved around the state in a somewhat haphaz-



Average number of poliomyelitis cases reported in Idaho for the first part of 1949-1954 compared to 1955.

ard manner, this year poliomyelitis cases have occurred almost simultaneously and uniformly over the entire state. There has been no area in the state that has had a disproportionate share of cases, if population density is considered.

CONCLUSIONS

Poliomyelitis vaccine used in a mass inoculation program in Idaho in 1955 contained live virus. The first result of the use of such a vaccine was to cause a wave of cases in vaccinated children. The second result the occurrence of a wave of cases in the contacts of cinated children. The widespread isolation of polion litis virus and the uniform distribution of cases indi that the state has been heavily seeded with virus p to the normal poliomyelitis season. The effect of early, unnatural seeding is unpredictable. (The number of cases as of Aug. 1 was 130.)

700 Jefferson St. (Dr. Peterson).

PERINATAL MORTALITY

Edwin M. Gold, M.D., Brooklyn, N. Y.

Perinatal mortality is a relatively new term. In 1948, Peller [1] felt that there was such a close association between fetal death ratios and neonatal mortality rates that he suggested their combination into a "perinatal mortality rate." Baumgartner and Erhardt [2] have reiterated the validity of this concept. The World Health Organization Expert Committee on Health Statistics in 1950 [3] recommended that the fetal death and neonatal mortality statistics be published alongside of each other so that they could be considered as a unit. Davis, Potter, and Bruce [4] referred to perinatal mortality as an inclusive term to include stillbirth and neonatal mortality. Obstetricians should think of perinatal mortality as expressing loss of life just before, during, or just after birth, since these are areas of prime obstetric responsibility. Therefore, in New York City a perinatal mortality rate is obtained by the following formula:

$$\frac{\text{Infant deaths (under 1 week) plus fetal deaths (28 weeks and over)}}{\text{Live births plus fetal deaths (28 weeks and over)}} \times 1{,}000$$

This formula reveals perinatal mortality to be composed of infant deaths (under one week) and late deaths (over 28 weeks' gestation). The vital stati of New York City for the years 1946 through 1 (table 1) indicate a decline in the perinatal mort rate of 19.5%. The late fetal deaths (28 weeks over) declined 28.0%, and the early infant deaths der 7 days) declined 12.0%. This represents impr ment, though not as rapid improvement as is note the decline of the maternal mortality rate of 44.4% the same period.

EARLY INFANT DEATHS AND THEIR CAUSES

Since the early infant deaths declined least, (12 let us examine them first to see why. They com 90% of the infant deaths in the first month of life, over 50% of them occur on the first day of life. M noteworthy is the fact that 90% of the early in deaths are due to perinatal causes; namely, premat in 51%, birth injuries and malformations in about each, and anoxia and erythroblastosis in 11%.

Prematurity.—Prematurity, accounting for half neonatal mortality in New York City and 79.1% natal day deaths in Chicago,[5] is a formidable caus early infant deaths. The incidence of prematurit New York City during the years 1946 through 1 has remained fairly constant at a level of 8.1% o live births, with an incidence of 7.5% in the whit against 11.5% in the nonwhite population. To red the early infant death rate further and more rapidly heretofore, prematurity must of necessity be preve and treated. The clues to reduction of prematurity sh be the relationships that have been shown [6] between parity, socioeconomic conditions of the pregnant wom and quality of prenatal care with the incidence of mature birth.

Recent confirmatory studies in New York C based on the criteria developed from birth certifi data, have pointed out that prenatal care is started (in the last trimester of pregnancy) in certain group pregnant women: the nonwhite patients in gene women under 20 and especially multiparas under patients delivered in municipal hospitals; Negro pati delivered on ward services of voluntary hospitals; patients delivered at home. All these data revea need to assure early and continuous prenatal care of pregnant women, but especially among the prio

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From the New York City Department of Health and the Department of Obstetrics and Gynecology, State University of New York College of Medicine at New York City.

Read before the sixth American Congress of Obstetrics and Gynecology, Chicago, Dec. 16, 1954.

[1] Peller, S.: Mortality, Past and Future, Population Studies **1**: 405-456, 1948.

[2] Baumgartner, L., and Erhardt, C.: Some Observations on the Factors in the Incidence of Prematurity and Fetal Death, in Pregnancy Wastage, Engle, E. T., editor, Springfield, Ill., Charles C Thomas, Publisher, 1953, pp. 146-174.

[3] Expert Committee on Health Statistics of the World Health Organization: Report on Second Session, Federal Security Agency, U. S. Public Health Service, National Office of Vital Statistics, 1950.

[4] Davis, M. E.; Potter, E. L., and Bruce, W. H.: Pertinent Factors in the Declining Perinatal Death Rate at the Chicago Lying-In Hospital, in Pregnancy Wastage, Engle, E. T., editor, Springfield, Ill., Charles C Thomas Company, 1953, pp. 222-242.

[5] Bundesen, H. N.: Natal Day Deaths: The Long-Neglected Field of Infant Mortality, J. A. M. A. **153**: 466-473 (Oct. 3) 1953.

[6] Douglas, J. W. B.: Health and Survival of Infants in Different Social Classes, Lancet **2**: 440-446 (Sept. 8) 1951. Steer, C. M., and Kosar, W. P.: Causes of Fetal Mortality at the Sloane Hospital for Women, 1940 to 1949, Am. J. Obst. & Gynec. **63**: 1091-1101 (May) 1952. Joint Committee of the Royal College of Obstetricians and Gynaecologists and the Population Investigation Committee: Maternity in Great Britain: A Survey of Social and Economic Aspects of Pregnancy and Childbirth, London, Oxford University Press, 1948. Eastman, N. J.: Prematurity from the Viewpoint of the Obstetrician, Am. Pract. **1**: 343-352 (March) 1947. Baird, D.: The Influence of Social and Economic Factors on Stillbirths and Neonatal Deaths, J. Obst. & Gynaec. Brit. Emp. **52**: 217-234 (June); 339-366 (Aug.) 1945.

[7] Wallace, H. M.; Gold, E. M.; Losty, M. A., and Weisl, B. A. G.: Prenatal Care in a Metropolitan Area, Am. J. Obst. & Gynec. **64A**: 89-93 (Dec.) 1952. Baumgartner, L., and others: Prenatal Care in New York City, 1951, Pub. Health Rep. **69**: 937-944 (Oct.) 1954.

roups mentioned. This is an area where maternal and hild health services of municipal health departments an work hand in hand with the obstetrician, the hospi-l, and other community agencies to locate such pri-rity groups of patients and assure their early and con-nuous care as one major means of reducing the inci-ence of prematurity.

Therapeutically, the most current, sound obstetric rinciples of management and care of the patient in remature labor and during premature delivery should e applied. Particular emphasis should be placed here n the conservative management of the patient with remature rupture of the membranes; she should be ospitalized and no attempt made to induce labor. lacenta previa should be treated expectantly to insure iability of the fetus. Cases of Rh and AB isoimmuniza-on should be carried to full viability before the preg-ancy is terminated. Finally, the recently summarized rinciples[8] of management of the premature labor and elivery should be continuously disseminated and tressed.

proprietary hospitals, 39.9% of the patients were delivered by midforceps, 62% by breech, 37.5% by internal podalic version, and 25% by cesarean section without a qualified obstetrician in attendance. Thus, it is timely to reiterate that each maternity service should provide a qualified chief of service and that this chief should set up and enforce consultation policies in the interest of lowering the incidence of birth injury.

Malformations.—There is not much that can be constructively stated about malformations except that their incidence remains stationary at about 1.5% of all births. About 15% of early infant deaths are directly or indirectly ascribable to this cause. The solution to the problem of lowering incidence of malformations lies in further research in the fields of environmental pathology and the influence of nutrition on the developing fetus in the first eight weeks of intrauterine life. The role of viral diseases in the first 12 weeks of gestational life in producing malformations is becoming more definite, though not particularly well understood. Prophylaxis therefore still stands in abeyance.

TABLE 1.—*Changes in Perinatal Mortality Taken from the Vital Statistics of New York City from 1946 to 1953*

	1946	1953	Percentage of Change
Live births	152,736	161,499	....
Infant deaths (under 1 yr.)	4,239	3,945	....
Infant death rate (per 1,000 live births)	27.8	24.4	(—) 12.2
Neonatal deaths (under 1 mo.)	3,279	2,945	....
Neonatal death rate (per 1,000 live births)	21.5	18.2	(—) 15.3
Early neonatal deaths (under 7 days)	2,804	2,623	....
Early neonatal death rate (per 1,000 live births)	18.4	16.2	(—) 12.0
Fetal deaths	12,980	19,357	....
Fetal death ratio (per 1,000 live births)	85.0	119.9	(+) 41.1
Fetal deaths (28 weeks and over)	2,947	2,239	....
Fetal death ratio (per 1,000 live births)	19.3	13.9	(—) 28.0
Perinatal mortality	5,751	4,862	....
Perinatal mortality rate	36.9	29.7	(—) 19.5
Maternal mortality	179	105	....
Maternal mortality rate (per 10,000 live births)	11.7	6.5	(—) 44.4

Birth Injury.—Birth injury is the second major cause of early infant mortality in New York City. The incidence of reported severe birth injury for the year 1948 in New York City was recently reported[9] as 1.7 per 1,000 live births. This study showed the relation of type of delivery to reported severe birth injury. The reported severe birth injury rates per 1,000 live births were 0.21 in spontaneous delivery and 1.3 in low forceps and cesarean section but jumped to 30.0 with version, 17.5 with high forceps, 14.4 with midforceps, and 14.0 with breech delivery. This study also pointed out that, despite recommendations of the Advisory Obstetric Committee of the New York City Health Department that consultation with a qualified obstetrician be required in all obstetric operations other than low forceps delivery, the facts showed otherwise. In the reported cases of severe birth injury occurring on the ward services of the municipal and voluntary hospitals, 60% of the midforceps and 85% of the breech deliveries were performed by the house staff without a qualified attending obstetrician in attendance. In the reported cases of severe birth injury on the private services of voluntary and

Erythroblastosis and Anoxia.—Together, erythroblastosis and anoxia account for 11% of early infant deaths in New York City. Deaths due to Rh incompatibilities and AB isoimmunization factors may be related to the thoroughness of antepartum diagnosis and the preparations in the immediate puerperium for coping with them. The anoxia cases in this group are associated with prolonged labor, operative delivery, and hemorrhagic complications at or near term, such as abruptio placenta, placenta previa, marginal sinus rupture, and other hemorrhage. Better obstetric management, more liberal use of consultation, skilled obstetric care for operative delivery, and temporizing in the management of placenta previa with liberal recourse to blood replacement as needed are contributing to reduction of early infant loss from these causes. In addition, increas-

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8. Gold, E. M.; Faison, J. B., and Wallace, H. M.: Prevention of Prematurity and Death from Prematurity from the Obstetric Viewpoint, New York J. Med. 50: 1407-1408 (June 1) 1950. Guttmacher, A. F.: Prematurity—The Obstetric Viewpoint, ibid. 53: 2781-2784 (Dec. 1) 1953.

9. Gold, E. M.; Clyman, M. J.; Wallace, H. M., and Rich, H.: Obstetric Factors in Birth Injuries with Consideration of the Value of Birth Certificate Reporting, Obst. & Gynec. 1: 431-436 (April) 1953.

ing awareness of the role the qualified anesthetist plays in bringing new conduction and regional anesthetic techniques into the delivery room and his growing role in supervision of neonatal resuscitation will further tend to decrease infant loss from anoxic causes. Adherence to such a policy is a potential in reducing anoxic complications as a major cause of early infant deaths.

Before the second component of perinatal mortality is analyzed—late fetal deaths (28 weeks and over)—it should be noted in table 1 that fetal death ratio (all fetal deaths) has risen 41.1% during the years 1946 through 1953 and the upward trend was continuous. This is ascribable to the increased reporting of early fetal deaths, particularly in the under-20-week group. The late fetal deaths (28 weeks and over) have fallen 28% during this eight year period. Numerically they represent approximately half of the perinatal deaths herein defined, the other half being the early infant deaths. This leads to a conclusion that possibly, by improvements in prenatal care and improved nutrition, together with improved techniques of coping with the complications of early pregnancy, more fetuses are now being carried beyond the 28th week and delivered alive. In other words, more "poor risk" infants are brought into the early neonatal period, thereby accounting for the relatively slower improvement of the early infant death rate, which declined only 12%.

TABLE 2.—*Reported Fetal Deaths by Cause of Death at Twenty-Eight Weeks and Over in New York City in 1952*

	No.		Percentage of Total	
All Causes	2,448		100.0	
Maternal Causes and Conditions	499		20.4	
Chronic diseases		100		4.1
Toxemia of pregnancy		225		9.2
Difficulties in labor		107		4.4
All other		67		2.7
Causes in the Fetus, Placenta, and Cord	931		38.0	
Placenta previa		21		0.9
Premature separation		270		11.0
Other placental and cord conditions		362		14.8
Birth injury		12		0.5
Congenital malformation		169		6.9
Erythroblastosis		97		3.9
Other causes		...		...
Ill-defined and unknown causes	1,017		41.6	

LATE FETAL DEATHS AND THEIR CAUSES

The late fetal deaths (over 28 weeks), the other component of our perinatal mortality, represent slightly more than 10% of the total fetal deaths per year in New York City but approximately 50% of the perinatal mortality. These are the antepartum and intrapartum intrauterine deaths.

Table 2, listing the reported fetal deaths at 28 weeks and over by cause of death for the year 1952 in New York City (the latest year of complete tabulation of la fetal deaths by cause), shows three major groups b cause.

Maternal Causes and Conditions.—Maternal cond tions represent 20.4% of the total. Of these cause toxemia represents 50%, abnormal labor 20%, an chronic diseases (such as diabetes, syphilis, and vascu lar and renal diseases) another 20%. Toxemia of pre nancy and chronic diseases of the mother represent challenge in relation to prenatal care. The same fact of implementing prenatal care, particularly in the pr ority group of mothers alluded to in discussion of ear infant deaths, is applicable here.

Causes in the Fetus, Placenta, and Cord.—Cond tions in the fetus, placenta, and cord represent 38% the late fetal deaths. Of these causes, premature separ tion of the placenta represents 29%, other placental ar cord conditions 39%, congenital malformations 18 and erythroblastosis 10%. If the high association premature separation of the placenta with toxemia, t high association of other placental conditions, such infarction, fibrosis, and degeneration with the vascul and renal complications of pregnancy, and the role antepartum casefinding and preparation in relation erythroblastosis are considered, the import of adequa antepartum care as the theoretical potential in loweri the incidence of late fetal deaths from these causes c again be recognized.

Ill-Defined or Unknown Causes.—Of paramount i terest is that in 41.6% of the late fetal deaths t cause was ill-defined or unknown. Hughes and Schoe eck[10] have stated that, if a woman had a premature d livery, stillbirth, or abortion in one pregnancy, she ha a better than average chance of difficulty in future pre nancy. On these grounds they recommended preco ceptional evaluation of prospective parents with a hi tory of previous unsatisfactory pregnancies. Such eval ation would be done in preconceptional clinics. Aaro Levine, and Gitman[11] on the basis of experiences such a clinic emphasize the need for further study of t uterine environment, the endometrium, and uteri anomalies because of the importance of these factors i repeated pregnancy wastage.

In New York City at present, the autopsy rate in la fetal and early infant deaths ranges between only 25 an 40%. In Chicago, on the other hand, autopsies are be ing performed on approximately 85% of all dead in fants.[12] Thus a vital source of information as to ana tomic cause of perinatal mortality in New York City i being sadly neglected. A pertinent recommendatio would be to increase autopsy percentages at the individ ual hospital and community level. These autopsies i both late fetal and early infant deaths should be don promptly, by specially trained pathologists, and the re sults collated with the clinical course of the mother s that the findings would be more meaningful. Anothe suggestion would be to stimulate the development o "perinatal mortality conferences" at hospital level a which the obstetrician, pediatrician, anesthetist, an pathologist could pool their knowledge during the cas study. Much information of a preventive and thera peutic nature can come from such an approach. Applying this same technique on a community level, we should stimulate the development of perinatal mortality committees patterned after the maternal mortality committees that have so materially aided in the reduction of maternal mortality in this country by eliciting the errors of omission and commission, from which the current recommendations of good obstetric practice have emanated.

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[10] Hughes, E., and Schoeneck, F. J., quoted in Syracuse Seeks Prevention, the Mother (Spring) 1951.

[11] Aaron, J. B.; Levine, W., and Gitman, L.: Pregnancy Wastage, Obst. & Gynec. 2:461-469 (Nov.) 1953.

[12] Bundesen, H. N., and others: Progress in Reduction of Needless Neonatal Deaths: A Challenge to a Health Officer and the Medical Profession, J. A. M. A. 148:907-917 (March 15) 1952.

CONCLUSIONS

In conclusion then, we have attempted to focus attention on the fact that perinatal mortality is composed of early infant deaths (under 7 days) and late fetal deaths (over 28 weeks), both areas where obstetric responsibility is high and the problems of which are inseparable. In order to speed up the decline in perinatal mortality, continued effort in the following areas is suggested. 1. In preconceptional care the effort should be to investigate families with a history of pregnancy wastage in the interval between pregnancy, to delve deeper into the realms of environmental pathology, and to increase research in the role that endometrial insufficiency and uterine anomalies play in pregnancy wastage. 2. In prenatal care attempts should be made to identify, locate, and give early and continuous high quality prenatal care to all pregnant women but especially to those in low socioeconomic strata, nonwhite patients in general, women under 20, and especially multiparas under 20. 3. Those concerned in intrapartum and postpartum care should disseminate and apply currently accepted standards of skilled obstetric and anesthesia care in all deliveries and especially in premature deliveries. Qualified consultation in obstetric and newborn infant practice should be used freely. An attempt should be made to raise the numbers and quality of autopsies performed at the hospital and community level to permit better evaluation if possible of causes of perinatal mortality on an anatomic basis. 4. Perinatal mortality committees should be further developed, patterned after the preexisting maternal mortality committees. Such committees should represent joint cooperation of the county medical society and the local health department.

47 Plaza St. (17).

Tuberculin Testing.—In spite of many studies of its value, many physicians still neglect the tuberculin test when the differential diagnosis of a pulmonary lesion is considered . . . [because] there seems to be a feeling that "since nearly every adult is tuberculin-positive, there is little reason to do the test." . . . Newer procedures in diagnosing lesions of the lungs are stressed . . . [and] the physician may become involved in the intricacies of the new tests rather than attempt to evaluate his patient on the basis of tried and true ones. . . . [Also] the present-day treatment for tuberculosis has become so simplified, with such a low percentage of toxic or ill effects, that the temptation is very great to start treatment before clinching the diagnosis. . . . The trend toward ambulatory care of tuberculosis hastens the feeling that treatment should be started just as soon as a pulmonary lesion is found. Nevertheless, the physician must not forget that the diagnosis of tuberculosis carries with it great social, economic, and physical responsibilities. . . . He must make the diagnosis with great certainty and caution. . . . The tuberculin test is a simple, cheap, and comparatively short test in which the possibility of a lesion being tuberculous can be ruled out. . . . It is one that has stood the test of time, and . . . it has not been supplemented by new and more intricate methods. It will become more valuable as our control of tuberculosis improves.—D. Jackson, M.D., The Value of Tuberculin Testing, *A. M. A. Archives of Internal Medicine*, June, 1955.

CLINICAL NOTES

V, A "NEW" Rh ANTIGEN, COMMON IN NEGROES, RARE IN WHITE PEOPLE

Albert DeNatale, Ph.C.
Amos Cahan, M.D.
James A. Jack, M.S., New York
Robert R. Race, Ph.D.
and
Ruth Sanger, Ph.D., London, England

A "new" blood group antibody has been found in the serum of a white, adult patient (Mr. V), in St. Luke's Hospital, who suffered from an obscure anemia and received 26 transfusions between March 18 and Sept. 15, 1954. The antibody was first discovered at St. Luke's Hospital when the cross match for the 27th transfusion was incompatible; subsequent inquiry showed that this prospective donor was a Negro, as were six of the previous donors. The red blood cell antigen identified by this antibody at first appeared to be confined to Negroes but it has now disclosed itself as being present rarely in whites, frequently in New York Negroes, and still more frequently in West Africans. The antigen is associated with the Rh system, but until its precise place in that system becomes clear we propose to call it V.

ASSOCIATION OF V WITH Rh SYSTEM

The "new" antibody, anti-V, might not have been pursued had not the panel of test cells then in use at the Knickerbocker Foundation included several samples from Negroes. In these preliminary tests the only two positive reactions were among the six Negro samples in the panel of 20 selected bloods. Attention was thus focused on Negro blood, and samples from 168 New York Negroes were then tested with anti-V; they were also tested for the A_1 A_2 BO, MNSs (including Hu, He, and Vw), P, Rh, Lutheran, Kell, Lewis, Duffy, and Kidd groups. The two categories of people, those with V and those without it, had undisturbed distributions of all these groups save Rh. The distribution of V in the Rh types of the New York Negroes, and in some West African Negroes subsequently tested, is shown in table 1; the lack of V+ lower in the list can be crystallized in the following tabulation. This is out of propor-

	Samples Representing	
	At Least One *cde* or *cDe* Chromosome	No *cde* nor *cDe* Chromosome
V+	105	0
V−	191	22

From St. Luke's Hospital (Dr. DeNatale); the Knickerbocker Foundation *(Dr. Cahan and Mr. Jack); and the Medical Research Council* Blood Group Research Unit, the Lister Institute (Drs. Race and Sanger).

Dr. Luis A. Amill, Director of the Blood and Plasma Bank, St. Luke's Hospital, New York City, gave help and advice in this study.

Dr. D. A. Cannon, Medical Research Institute, Lagos, Nigeria; Dr. J. N. Marshall Chalmers, St. George's Hospital, London, England; Dr. G. M. Edington of the Medical Research Institute, Accra, British West Africa; and Mr. I. Sackey, Accra, supplied the samples from individuals and families in West Africa.

Dr. R. A. Zeitlin, South London Transfusion Centre, and the staff of the Lister Institute, London, England, supplied most of the samples from white persons.

Dr. T. J. Greenwalt, Milwaukee Blood Center, Milwaukee, supplied samples from the Milwaukee family.

Dr. C. A. Holman, Lewisham Group Laboratory, and Dr. K. E. Saunders, Dulwich Hospital, London, England, supplied samples from the Jamaican families.

tion to the extent that the "exact" probability is 1 in 9,860. A little of the sting is taken out of this probability because so many comparisons were made (for example, V+: V— with A: not A and V+: V— with M: not M); however, as will be seen from the family evidence, the association between V and Rh detected thereby was a true one.

TABLE 1.—*Antigen V and Rh Types**

	New York Negroes		West Africans	
	V+	V—	V+	V—
cde/cde	3	7	2	6
cDe/cDe † and *cD*^{u}*e/cde*	23	58	41	45
CDe/cDe ‡ and *CD*^{u}*e/cde*	12	29	7	20
cDE/cDe §	7	13	9	12
Cde/cde	0	1	1	0
CDe/cDE and *C*^{x}*De/cDE*	0	5	0	3
cDE/cDE	0	3	0	2
CDe/CDe and *C*^{w}*De/CDe*	0	7	0	2
	45	123	60	90

* Rh antiserums used were: anti-C, -c, -C^w, -D, -E, -e, -f, and sometimes, anti-C^x and anti-E^w.

† *cDe/cDe* cannot, without family evidence, be distinguished from *cDe/cde*.

‡ *CDe/cDe* cannot, without family evidence, be distinguished from *CDe/cde*.

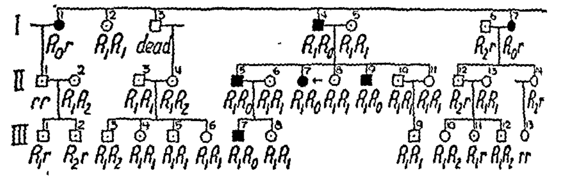
§ *cDE/cDe* cannot, without family evidence, be distinguished from *cDE/cde*.

FREQUENCIES

Table 2 shows the frequency of the antigen V, and that of its gene, in the three groups of people thus far tested. It can be estimated that in West African Negroes about 25% of *ce* chromosomes (*cDe* and *cde*) carry the gene *V*, and that in New York Negroes about 18% of these chromosomes carry it; owing to the smallness of the relevant samples it is not yet possible to give separate estimates for the two chromosomes. The West African sample, from Lagos, Nigeria, and Accra, British West Africa, is presumably heterogeneous; the people belonged to at least six different tribes. The Rh frequencies agree well with those of Chalmers, Ikin, and Mourant[1] for Nigeria. The New York Negroes were blood donors selected for darkness of skin. The Rh frequencies are very close to those found by Miller, Rosenfield, and Vogel[2] for the same population. The whites in London, England, were donors to the South London Transfusion Centre or were members of the Lister Institute. Both V+ donors and many of the relatives of one of them have been visited; there was no sign or history of any African ancestry. The blood of 444 white donors in New York has also been tested; two samples were V+, and both of them were found to be from Puerto Ricans. Three other Puerto Ricans included in this group were V–.

INHERITANCE

It proved too difficult to get samples of blood from the families of New York Negroes, so attention was turned to the possibility of getting family samples from West Africa. While the West African families (table 3) strongly suggested that the antigen V was inherited as a Mendelian dominant character, they were not capable of throwing light on the relationship of V to Rh because none of them segregated for both Rh and V. This stimulated us to continue the search for V in white peo in white families the segregation of the Rh genes is m clearer and V, if found, would inevitably be in the h erozygous state and so, with luck, should segregate The family of one of the two London V+ donors (ta 2) provided exactly the information needed. The fa heritage is shown in the figure, which gives proof that antigen is a dominant character, for if it were reces four unrelated members of this English family wo have to be carriers of the gene responsible, i. e., I-5 II-6 and the father and mother of generation I, wh is not to be entertained.



Heritage of English family, showing linkage between V and Rh. designates family members with antigen V, dot designates those who the antigen V, and arrow designates propositus. *Ro* = *cDe*, r = *cde*, *CDe*, and R_2 = *cDE*. Rh antiserums used were: anti-C, -c, -C^w, -D -e, -f, and, sometimes, anti-C^x and anti-E^w.

The family also shows linkage between V and the *V* gene is carried on *cDe* chromosome. Propos II-7 and appropriate members of her immediate fa were at first labeled *CDe/cde* (cannot be distinguis serologically from *CDe/cDe*); however, the group I-1 and her son and the groups of I-7 and her daug and granddaughter show that I-4 is evidently *CDe/c* Since in this part of the argument we are assuming linkage that we want to demonstrate, it should be poi out that the family of I-4 shows the linkage of V with irrespective of whether the chromosome with which linked is *cDe* or *cde*: this branch of the family sc 7:0 for linkage and to it can fairly be added I-2, mak the score 8:0. (The ratio represents the number people that show linkage to the number that would t have to be recombinants.) The probability that this parent linkage is due merely to chance is but 1 in 1 The family was also tested for the other eight blood gr systems and, some of the members, for the ability taste phenylthiocarbamide. The segregations were s that close linkage could be excluded between V and MNSs, P, and Kidd; the other groups did not give linkage information.

TABLE 2.—*Antigen V: Phenotype and Gene Frequencies Three Groups of People*

	West Africans in Lagos and Accra		Negroes in New York		Whites in London	
V+	60	0.4000	45	0.2679	2	0.0049
V—	90	0.6000	123	0.7321	405	0.9951
	150	1.0000	168	1.0000	407	1.0000
Gene *V* *		0.2254		0.1444		0.0025
Gene *v* †		0.7746		0.8556		0.9975

* The frequency of the gene *V* is 1 — frequency of *v*.

† The frequency of the gene *v* is given by the square root of frequency of the phenotype V—.

FURTHER STUDIES

Serologic Details.—The blood groups of Mr. V. w B, *cde/cde*, Lu (a–), K–; his P, MNSs, Lewis, Duff and Kidd groups were in doubt due to the presence

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Dr. A. E. Mourant, Medical Research Council Blood Group Reference Laboratory, Lister Institute, London, England, supplied many of the antiserums.

1. Chalmers, J. N. M.; Ikin, E. W., and Mourant, A. E.: The ABO, MNS and Rh Blood Groups of the Nigerians, Ann. Eugenics **17**: 168, 1953.
2. Miller, E. B.; Rosenfield, R. E., and Vogel, P.: On the Incidence of Some of the New Blood Agglutinogens in Chinese and Negroes, Am. J. Phys. Anthropol. **9**: 115, 1951.

many transfused cells. The serum of the patient contained, beside anti-V, anti-Wr^a. Anti-V gives clear reactions by the indirect antiglobulin method; it also agglutinates V+ cells suspended in albumin. The agglutination of trypsinized V+ cells is powerful but somewhat obscured by weaker "false" agglutination of all trypsinized V− blood cells tested with this serum. It was obviously necessary to dissociate V from other antigens rare in white persons: V+ red blood cells failed to react with anti-C^x, -E^w, -Mi^a, -Be^a, -Vw, -Wr^a. Two examples of the rare Rh genotype *-D-/-D-* did not react with anti-V, nor did an example of the rare Rh genotype *cdeF/cdef*. It seems that the V antigens of white and Negro people must be the same: when anti-V was absorbed by V+ red blood cells from a white person it lost its reaction for V+ Negroes and vice versa. Saliva from a V+ person, as expected, did not inhibit the reaction of anti-V.

TABLE 3.—*Negro Families Tested for V*

No.	Father	Mother	Children				Home
1.	V− *CDe/cDe* *	V− *CDe/cDE*	V− *CDe/cDE*	V− *cDE/cDe* ‡	V− *CDe/cDe*	V− *CDe/cDe*	Lagos, Nigeria
2.	V− *cDe/cDe* †	V− *cDe/cDe*	V− *cDe/cDe*	....	....	....	Lagos
3.	V− *cDe/cDe*	V− *CDe/cDe*	V− *CDe/cDe*	V− *cDe/cDe*	....	....	Lagos
4.	V− *cDe/cDe*	V− *CDe/cDe*	V− *CDe/cDe*	....	....	....	Lagos
5.	V− *cDe/cDe*	V− *cDe/cDe*	V− *cDe/cDe*	V− *cDe/cDe*	V− *cDe/cDe*	V− *cDe/cDe*	Accra, British West Africa
6.	V− *cde/cde*	V− *cDe/cDe*	V− *cDe/cde*	....	....	....	Lagos
7.	V− *cDe/cDe*	V− *cde/cde*	V− (cord blood) *cDe/cde*		....	....	Jamaica, West Indies
8.	V+ *cDe/cDe*	V− *cDE/cDe*	V+ (cord blood) *cDE/cDe*		....	....	Jamaica
9.	V− *cde/cde*	V+ *cDe/cde*	V− *cde/cde*	....	....	....	Lagos
10.	V− *cDe/cDe*	V+ *cDe/cDe*	V+ *cDe/cDe*	V+ *cDe/cDe*	....	....	Accra
11.	V+ *CDe/cDe*	V− *cDe/cDe*	V+ *cDe/cDe*	V+ *cDe/cDe*	....	....	Accra
12.	V− *cDe/cDe*	V+ *CDe/cDe*	V+ *cDe/cDe*	V+ *cDe/cDe*	....	....	Milwaukee
13.	V+ *CDe/cDe*	V+ *cDe/cDe*	V+ *CDe/cDe*	....	....	....	Lagos
14.	V+ *CDe/cDe*	V+ *cDe/cDe*	V+ *cDe/cDe*	V+ *CDe/cDe*	....	....	Accra
15.	V+ *cde/cde*	V+ *cDe/cDe*	V+ *cDe/cde*	V+ *cDe/cde*	V+ *cDe/cde*	....	Accra

* *CDe/cDe* cannot, without family evidence, be distinguished from *CDe/cde*.
† *cDe/cDe* cannot, without family evidence, be distinguished from *cDe/cde*.
‡ *cDE/cDe* cannot, without family evidence, be distinguished from *cDE/cde*.

Development.—The antigen V is well developed at birth, judging by the cord blood sample in family 8 (table 3).

Sickling.—Blood samples of the West African Negroes were tested for sickling by Dr. Edington or by Dr. Marshall Chalmers. In the first 40 samples (in which there had been some selection for sickling) there was a highly significant association between the presence of sickling and the absence of V (p = about 1 in 1,000). This apparent association was entirely obliterated in the final counts. Perhaps the earlier sample was heterogeneous; heterogeneity was considered as a possible explanation of the association observed by Shapiro and Vandepitte[3] between Rh and sickling in the Congolese Bantu, a Negro tribe in the Belgian Congo.

TRANSFUSION AND PREGNANCY

Tens of thousands of white people must have received blood transfused from Negro donors, yet only Mr. V is known to have responded by making anti-V. It seems that V cannot be efficient at immunizing, but we must remember that the antibody would only be disclosed by a second transfusion of Negro V+ blood and furthermore, that it would be overlooked unless Negro blood were included in the subsequent investigation. The blood of the two English V+ donors was seen surviving in samples from their V− recipients two to three weeks after transfusion. One of these recipients has had a second transfusion of V+ blood without adverse reaction and without making detectable anti-V. The antigen V can hardly be an effective cause of hemolytic disease of the newborn infant; over 20% of Negro matings could provide candidates, yet the disease is relatively uncommon in these people and, when it does occur, is usually attributable to anti-D.

DIFFICULTIES IN FINDING PRECISE PLACE OF V IN Rh SYSTEM

The significantly disturbed distribution of V within the Rh groups of unrelated people and the absolute linkage of V with Rh in the family shown in the figure clearly point to V being part of Rh. Assuming that V is part of Rh then its gene can be part of some *cde* chromosomes (because some *cde/cde* people have the antigen V); the gene *V* can also be part of some *cDe* chromosomes (see figure and table 3, family 9). The evidence is strong that *V* is not usually part of *CDe* or *cDE* chromosomes (because no *CDe/CDe, CDe/cDE, or cDE/cDE* people have yet been found to have V, and this absence is highly significant). If the chromosomes *cde* and *cDe* may carry the gene *V* and if the chromosomes *CDe* and *cDE* usually do not, then we would expect to find a higher frequency of the antigen V in *cde/cde, cDe/cde,* and *cDe/cDe* people than in *CDe/cde, CDe/cDe, cDE/cde,* and *cDE/cDe* people. This expectation was not realized in the New York Negroes, and the deviation is a significant one:

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[3] Shapiro, M., and Vandepitte, J.: Blood Groups and the Sickle Cell Trait in the Congo Bantu, Résumés des Rapports et Communications, Ve Congrès International de Transfusion Sanguine, Paris, p. 73, 1954.

	V+	V—
Genotypes involving 2 *cde* or *cDe*..........	26 (29%)	65
Genotypes involving 1 *cde* or *cDe*..........	19 (31%)	43

but it was realized in the West Africans where the fit is good:

	V+	V—
Genotypes involving 2 *cde* or *cDe*..........	43 (46%)	51
Genotypes involving 1 *cde* or *cDe*..........	17 (35%)	82

The testing of more New York Negroes may solve this puzzle.

Is is unlikely that the gene *V* is allelomorphic to *D*. For example, I-1 in the figure is of the genotype *cDeV/cdev*, and her D antigen is apparently of the usual kind. (The anti-D in use was shown to be free from anti-V by its negative reaction with *cde/cde* V+ red blood cells.) The gene *V* is probably not allelomorphic to *C* or to *E*. Blood containing V can have apparently normal C and c antigens (as, for example, *CDe/cDe*); blood containing V can also have apparently normal E and e antigens (as, for example, *cDE/cDe*). The gene *V* could be an allelomorph of *f*. It is rather striking that the chromosomes that, in Negroes, may have *V* (*cde* and *cDe*) are those that, in whites, with but few exceptions, have *f* (Rosenfield and co-workers[4]).

The Negro samples in tables 1 and 3 were tested with anti-f and, as in whites, those bloods representing the chromosomes *cde*, *cDe* or cD^ue possessed the antigen f. Of the New York Negro samples 60 were tested against titrations of anti-f: there was a faint and far from significant hint that those containing the antigen V had a little less f antigen than had those lacking V. This slight hint made us wonder whether our anti-f serum is really anti-f plus anti-V. (Anti-f was one of several antibodies produced by a white patient in New York who had received about 35 transfusions of blood, some of which may have been donated by Negroes.) We have not, by appropriate absorptions, been able to demonstrate anti-V in the anti-f serum, but this does not convincingly exclude its presence there. Had we been able to exclude this possibility of *V* being an allelomorph of *f* we would have looked on it as a representative of a fifth Rh locus—*G*. When better understood, V cannot fail to throw further light on the structure of the Rh genes: already it is of potential clinical, anthropological, and evolutionary importance.

SUMMARY

A "new" blood group antigen has been found that, for the present, is being called V. It is common in Negroes and rare in white persons. Of 150 West Africans, 60 (40%) had V; of 168 New York Negroes, 45 (27%) had V; of 407 London whites, 2 (0.5%) had V; and of 444 New York whites 2 (0.5%) had V. The antigen is inherited as a dominant Mendelian character and belongs to the Rh system. The gene *V* can be part of some *cde* chromosomes and of some *cDe* chromosomes, but its precise place in the system is not yet clear.

300 W. 43rd St. (36) (Dr. Cahan).

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[4] Rosenfield, R. E., and others: A "New" Rh Antibody, Anti-f, Brit. M. J. 1:975, 1953. Sanger, R., and others: Anti-f and the "New" Rh Antigen It Defines, Proc. Nat. Acad. Sc. 39:824, 1953.

CHEMICAL LABORATORY

The following report is the result of additional st on caffeine in instant and decaffeinated coffee.

WALTER WOLMAN, Ph.D., *Director*

INSTANT AND DECAFFEINATED COFFEE

In the report of the Chemical Laboratory in T JOURNAL, July 23, 1955, page 1030, entitled "Xanthi Tannins, and Sodium in Coffee, Tea and Cocoa" val for the caffeine content of the coffees examined w based on a gravimetric procedure. Subsequently, it found that this method leads to erroneous values caffeine in decaffeinated coffees. Nitrogen determinati by the Kjeldahl method on the residue obtained in gravimetric procedure lead to results that more ac rately represent the actual caffeine contents of coff The results reported in table 1 were obtained by use of the Kjeldahl nitrogen method. The values pressed as maximum caffeine per cup, in milligrams, calculated on the basis that 8.0 gm. of the ground b coffee is equivalent to a rounded tablespoon and gm. of the instant coffee is equivalent to a rounded spoon. Two hundred fifty milliliters of liquid is ta to represent a cup. If 1.3% is taken as an average the caffeine content of regular roasted coffee beans, results obtained indicate that the available decaffein ground bean coffees contain roughly one-fortieth of amount of caffeine found in the regular coffee. The caffeinated instant coffees also contain about one-fort of the amount of caffeine present in regular instant fees. This is equivalent to 97% or more removal caffeine from these coffees as has been indicated by v ous advertising claims. Table 2 gives the caffeine cont of regular instant coffee determined by the Kjeldahl trogen method. The values expressed as maximum feine per cup, in milligrams, are again calculated on basis of 2.5 gm. of the regular instant coffee per 250 cup.

TABLE 1.—*Actual Amounts of Caffeine, by Kjeldahl Nitrogen Method*

	Average Caffeine, %	Maximu Caffeine per Cup, Mg.
Decaffeinated ground bean coffee		
Brand F	0.03	2.4
Brand G	0.05	4.0
Decaffeinated instant coffee		
Brand F	0.10	2.5
Brand H	0.08	2.0

TABLE 2.—*Caffeine Content of Regular Instant Coffee, by Kjeldahl Nitrogen Method*

Brand	Average Caffeine, %	Maximu Caffeine per Cup. Mg.
B	3.70	93
D	3.45	86
E	3.95	99

In the note appearing in THE JOURNAL, Aug. 13, 19 page 1369, some question was raised about the relia ity of the analytical procedure used originally. The d now presented indicate that inaccurate results were ported in the original article of July 23 in regard the caffeine content of instant and decaffeinated coffe

APPROVED INTERNSHIPS AND RESIDENCIES IN THE UNITED STATES

ANNUAL REPORT ON INTERNSHIPS AND RESIDENCIES BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Edward H. Leveroos, M.D., Arthur N. Springall, M.D. and Carl T. Heinze, M.S.H.A.

Annual Report

This 29th Annual Report of the Council on Medical Education and Hospitals presents information and statistical data on intern and resident training programs conducted in Council-approved hospitals located in the United States, Canal Zone, Hawaii, and Puerto Rico. The report is composed of descriptive material; statistical tables; information on the National Intern Matching Program, the Ad Hoc Committee on Internships, and the Internship Review Committee; and a brief report on foreign physicians serving as interns and residents in approved hospitals.

The material presented in the report was compiled from information submitted by hospitals approved for intern and resident training. The number of interns and residents serving and the number of vacancies in the intern and resident staff quoted in the statistical tables indicate the situation as of Sept. 1, 1954. Accordingly, there is a difference between the statistics presented in the tables and those in the lists of approved services, since the latter refer to appointments for the year beginning July 1, 1956.

Following the report, there are published lists of hospitals offering approved internships and residencies. The first list is devoted to hospitals approved for intern training, in which hospitals are listed by city and state; information is included on the type of control, the total number of beds, annual admissions, availability of outpatient services, the autopsy rate, the length of the program, affiliated services, the stipend, and the number and type of internships offered. A second classification lists these hospitals according to types of internships offered. The second section lists the approved residencies according to medical specialty, giving statistical data for the particular service, the name of the chief of service, and other pertinent information similar to that included in the internship list. In addition, hospitals approved for resident training are listed on a geographical basis, giving the specialties for which each hospital is approved.

The Annual Report and the lists referred to above, together with information on all approved examining boards in the medical specialties, are reprinted annually as the Directory of Approved Internships and Residencies.[1] The Council will furnish copies of this directory upon request. The publication of this report and the lists of approved hospitals is made possible through the cooperation of the medical staffs and the administrators of hospitals in which approved intern and resident programs are conducted. The Council gratefully acknowledges their support and assistance in providing the statistical data on which this report is based.

The Council has collaborated with the following organizations in approving residency programs:

- Advisory Board for Medical Specialties
- American Academy of General Practice
- American Board of Anesthesiology
- American Board of Dermatology and Syphilology
- American Board of Internal Medicine
  - Subspecialty Board on Allergy
  - Subspecialty Board on Cardio-Vascular Diseases
  - Subspecialty Board on Gastroenterology
  - Subspecialty Board on Pulmonary Diseases
- American Board of Neurological Surgery
- American Board of Obstetrics and Gynecology
- American Board of Ophthalmology
- American Board of Orthopedic Surgery
- American Board of Otolaryngology
- American Board of Pathology
- American Board of Pediatrics
  - Subspecialty Board on Allergy
- American Board of Physical Medicine and Rehabilitation
- American Board of Plastic Surgery
- American Board of Preventive Medicine
- American Board of Proctology
- American Board of Psychiatry and Neurology
- American Board of Radiology
- American Board of Surgery
- American Board of Urology
- Board of Thoracic Surgery
- American College of Physicians
- American College of Surgeons

The Council expresses its appreciation to these organizations for their invaluable assistance, active participation, and continuing interest in the residency approval program.

The Annual Report is published for the information of the medical profession, medical educators, hospital administrators, and others interested in medical education at the internship and residency levels. It is hoped that the material contained in the report will be of value to young physicians and medical students in their efforts to further their training and in beginning their professional careers.

Internships

Table 1 presents a summary for the past 10 years of the number of hospitals approved for intern training and the number of approved internships. Last year, 844 hospitals offered 10,624 internships available as of July 1, 1955. This year there are 850 approved hospitals offering 11,048 internships, an increase of 6 approved hospitals and 424 internships. During the past 10 years, there has been an increase of 52 in the number of hospitals (7%), while the number of internships has increased from 8,584 to 11,048, or 29%. Ten years ago, the average number of interns per hospital was 10.8; in 1955, the average number is 12.9. It is significant to note that when the Council published its first list of approved hospitals in 1914, this list designated 603 hospitals that offered 3,095 approved internships, an average of 5.1 interns per hospital. In comparing these data with the 1955 figures, there is an increase of 41% in the number of approved hospitals, while the number of internships has increased 257%.

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[1] Information on the examining boards in medical specialties will be published in THE JOURNAL, Oct. 1, 1955.

The disparity between the number of approved internships and the number of American medical school graduates available each year to fill them is gradually increasing. There were 6,960 such graduates in 1955. The disparity this year is therefore more than 4,000 internships, of which number less than one-half are filled by foreign medical school graduates. The Ad Hoc Committee on Internships in its final report to the House of Delegates recommended that hospitals offering intern training carefully reevaluate their individual needs for interns in an effort to reduce the number of vacant internships. It is of interest to note that 95% of currently approved hospitals will accept women medical graduates as interns and 19% of the approved hospitals offer dental internships; 79% are approved for residency training in one or more specialties. Hospitals offering approved internships located outside of continental United States include one in the Canal Zone, four in Hawaii, and five in Puerto Rico.

Table 1.—*Approved Hospitals and Internships, 1946-1955*

Year of Publication	No. of Hospitals	No. of Internships *
1946	798	8,584
1947	764	8,539
1948	807	9,118
1949	807	9,124
1950	799	9,398
1951	828	10,044
1952	865	11,467
1953	856	11,006
1954	844	10,624
1955	850	11,048

* U. S. Army and U. S. Navy hospitals and those outside the United States not included in 1946 and 1947 figures.

INTERNSHIPS, BY TYPE OF SERVICE

A breakdown of the number of approved internships by type of service is shown in table 2, including the number and percentage of those reported filled and vacant on Sept. 1, 1954. A total of 1,062 approved intern programs were offered in 850 hospitals. The total number of internships offered was 11,048. Of this number, 9,807, or 89%, were rotating in type. Straight internships, which included straight service assignments in the fields of internal medicine, pediatrics, surgery, obstetrics-gynecology, and pathology, showed the next largest number with 1,109 (10%) internships offered in this category. Mixed internships numbered 132, slightly more than 1%. In all instances, the percentage of internships offered in the three categories were the same as those for the previous year. The percentage of internships filled has increased slightly over last year's figures. Rotating internships were 82% filled on Sept. 1, 1954, as compared with a figure of 79% for the previous year. Mixed internships showed 82% against 68% for last year. Straight internships were 85% filled as compared with a previous percentage of 78.

Considering straight internships, there was an increase in those filled in internal medicine, pediatrics, and surgery. Internships in obstetrics-gynecology and patholog showed a low percentage of occupancy, probably du to the fact that the status of these straight services ha not been clarified following the action of the House o Delegates in December, 1952, recommending elimination of these two categories. The Council has subsequently taken action regarding the straight internship i obstetrics-gynecology, all hospitals approved for thi type of training having been notified that approval wil be discontinued effective June 30, 1957. Final actio concerning the straight internship in pathology is expected to be taken at the 1955 Interim Session of th American Medical Association in November.

The over-all figure for internships filled for 1954 1955 was 82%, an increase of 4% over 1953-1954. The number of vacant internships for all types dropped from 2,267 to 1,982, a decrease of 285. A further breakdown of these vacancies appears later in the report. The increased figure for internships filled is attributed to an increase of foreign medical school graduates serving as interns. The increase in American graduates, 99 more than in 1954, accounts for a part of the increase; however, there were approximately 2,000 more internships filled in 1954-1955 than there were American medical school graduates for that year.

INTERNSHIPS, BY TYPE OF HOSPITAL CONTROL

Table 3 shows the distribution of internships according to type of hospital control. Of the 11,048 approved internships, 629 (5.5%) were offered by federal hospitals; 3,404 (31%) by nonfederal governmental institutions; 6,954 (63%) were available in nongovernmental hospitals, and 61 (less than 1%) in proprietary hospitals. From the standpoint of positions filled on Sept. 1, 1954, three of the federal services group—the Public Health Service hospitals with an occupancy rate of 100%, Army hospitals with a rate of 99%, and Navy hospitals with 97% of their positions filled—and two of the nonfederal governmental group—county hospitals with 96% of their positions filled and city-county hospitals with an occupancy rate of 93%—were well above the average for all internships.

Table 2.—*Number of Internships, by Type of Service, 1954-1955*

Type of Internship	No. of Approved Programs	No. of Internships: Filled Sept. 1, 1954	Vacant Sept. 1, 1954	Percentage Filled
Rotating general	804	7,938	1,762	82
Other rotating	30	60	27	69
Totals	834	8,018	1,789	82
Mixed	25	108	24	82
Straight				
Internal Medicine	71	496	53	90
Surgery	58	299	63	83
Pediatrics	42	110	19	85
Obstetrics-gynecology	8	10	15	40
Pathology	24	25	19	57
Totals	203	940	169	85
Grand totals	1,062*	9,066	1,982	82

* Number of internship programs in 850 approved hospitals.

The governmental-controlled hospitals, both federal and nonfederal, showed an increase in the percentage of positions filled over last year; in 1954-1955 figures were 89% in both instances, while those for the previous year were 82% and 84% respectively. The nongovernmental group of hospitals had an occupancy rate of 78% this year, an increase of 3% over last year. The proprietary hospitals showed the lowest percentage of positions filled, with a rate of 67%. Paralleling the increased percentage of intern positions filled, there was an actual increase in the number of interns on duty, 9,066 this year as compared to 8,275 last year. The average number of internships offered for federal hospitals was 15.7; the average number filled was 13.9. The figures for the nonfederal governmental hospitals were 26.6 and 23.6 respectively; for the nongovernmental group, 10.4 and 8.1; and for the proprietary hospitals, 6.1 and 4.1. The average number of internships available considering all hospitals was 12.9; the average number of internships filled was 10.6.

TABLE 3.—*Number of Internships, by Type of Hospital Control, 1954-1955*

		No. of Internships		
Control	No. of Approved Hospitals	Filled Sept. 1, 1954	Vacant Sept. 1, 1954	Percentage Filled
Federal				
U. S. Army	8	208	1	99
U. S. Navy	14	175	5	97
U. S. Public Health Service	7	72	..	100
Veterans Administration	9	88	50	64
Other federal	2	15	15	50
Totals	40	558	71	89
Governmental (nonfederal)				
State	27	629	171	79
County	33	830	31	96
City	51	1,204	158	88
City-county	17	354	27	93
Totals	128	3,017	387	89
Nongovernmental				
Church operated	76	585	172	77
Church related	246	1,768	535	77
Nonprofit corporations	350	3,097	797	79
Totals	672	5,450	1,504	78
Proprietary				
Partnership	1	4	4	50
Corporations unrestricted as to profit	9	37	16	70
Totals	10	41	20	67
Grand totals	850	9,066	1,982	82

INTERNSHIPS, BY MEDICAL SCHOOL AFFILIATION AND BED CAPACITY

In this report and in the list of approved internships that follows, hospitals have been classified as "major teaching," "minor teaching," and "nonaffiliated," such classifications being based on the extent to which medical schools utilize these hospitals for undergraduate education. A "major teaching" hospital is one that is considered by the school as being a major unit in its undergraduate clinical clerkship program, while a "minor teaching" hospital is one utilized to a limited extent for undergraduate instruction. A "nonaffiliated" hospital is one not designated by a medical school as participating in such a program. Table 4 presents a statistical analysis of internships based on this classification.

The 140 hospitals designated as major units constituted 16% of approved hospitals for 1954-1955. They offered 4,017 internships, or 36%, of the total number. There were 73 minor teaching hospitals, or 9%, in which 849, or 8%, of internships were offered. By far the largest group of approved hospitals was that classified as nonaffiliated, of which there were 637, or 75%. This group offered 6,182 internships, or 56% of the total number.

The major teaching units had the highest internship occupancy rate—85%; the nonaffiliated group the lowest rate—80%. These rates were based on data as of Sept. 1, 1954. All three groups showed an appreciable increase in the percentage of internships filled over last year. The major units showed a 3% increase; the minor units had an occupancy rate of 81% as compared with 77% for the previous year; the nonaffiliated group showed a 4% increase. Occupancy rates varied from a low of 65% in hospitals with less than 200 beds to a high of 92% in hospitals with 500 or more beds; both these extremes occurred in minor teaching units.

The general trend indicates that the larger hospitals filled a higher percentage of their intern positions than did the small hospitals. This generalization is not directly applicable to the major teaching group, in which hospitals with less than 200 beds showed an occupancy rate of 87% while those classified as having 500 or more beds had a rate of 86%. The trend is borne out, however, if the data for hospitals of the same bed capacities are combined for major teaching, minor teaching, and nonaffiliated. The intern occupancy rates for this grouping are: hospitals of less than 200 beds, 77%; those having 200 to 299 beds, 76%; those with 300 to 499 beds, 83%; and those of 500 or more beds, 87%. Based on these statistics, it is evident that hospitals having a bed capacity of more than 300 filled an appreciably higher percentage of their internships than hospitals having less than this number.

TABLE 4.—*Number of Internships, by Medical School Affiliation and Bed Capacity, 1954-1955*

		No. of Internships		
Classification	No. of Approved Hospitals	Filled Sept. 1, 1954	Vacant Sept. 1, 1954	Percentage Filled
Nonaffiliated				
Less than 200 beds	169	707	209	77
200-299	249	1,518	489	76
300-499	168	1,717	389	81
500-over	51	993	130	89
Totals	637	4,965	1,217	80
Major teaching				
Less than 200 beds	11	97	14	87
200-299	19	174	37	82
300-499	46	776	156	83
500-over	64	2,364	399	86
Totals	140	3,411	606	85
Minor teaching				
Less than 200 beds	18	71	38	65
200-299	21	123	56	68
300-499	26	303	48	86
500-over	8	193	17	92
Totals	73	690	159	81
Grand totals	850	9,066	1,982	82

INTERNSHIPS, BY CENSUS REGION AND STATE

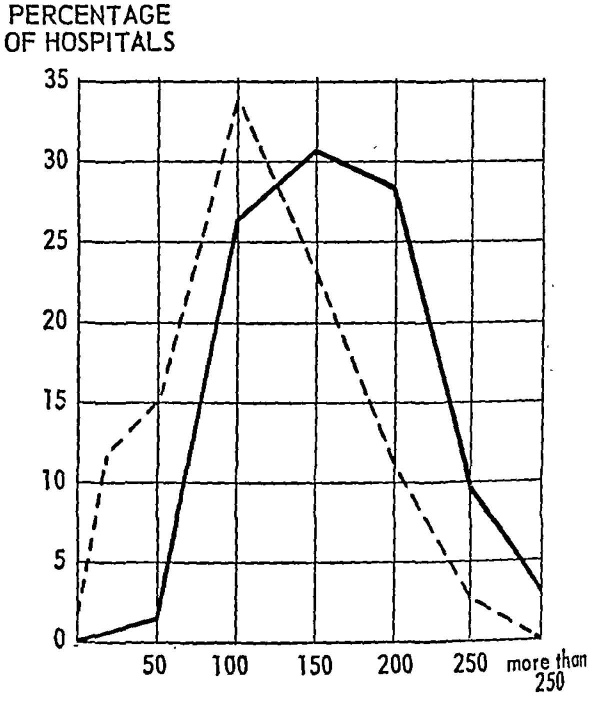
Table 5 shows a breakdown of the number of approved internships filled and vacant by states, as of Sept. 1, 1954, with a summarization by census region. As indicated in previously presented data, there has been an

TABLE 5.—*Number of Internships, by Census Region and State, 1954-1955*

Census Region and State	No. of Approved Hospitals	No. of Internships: Filled Sept. 1, 1954	No. of Internships: Vacant Sept. 1, 1954	No. of Internships: Percentage Filled
New England				
Maine	4	16	11	59
New Hampshire	1	14	..	100
Vermont	2	20	2	91
Massachusetts	37	333	39	89
Rhode Island	6	44	14	76
Connecticut	21	152	29	84
Totals	71	579	95	86
Middle Atlantic				
New York	104	1,444	176	89
New Jersey	42	344	41	90
Pennsylvania	78	675	228	75
Totals	224	2,463	445	84
East North Central				
Ohio	49	603	70	90
Indiana	17	106	77	58
Illinois	63	636	149	81
Michigan	34	462	87	84
Wisconsin	22	162	45	78
Totals	185	1,969	428	83
West North Central				
Minnesota	14	183	35	84
Iowa	11	60	34	64
Missouri	25	294	134	69
North Dakota	4	9	7	56
South Dakota	3	16	4	80
Nebraska	9	51	10	84
Kansas	7	60	26	70
Totals	73	673	250	73
South Atlantic				
Delaware	3	24	4	85
Maryland	21	219	64	78
District of Columbia	11	160	32	83
Virginia	19	159	37	81
West Virginia	7	34	15	69
North Carolina	12	128	48	72
South Carolina	7	85	17	83
Georgia	12	155	15	91
Florida	13	133	15	90
Totals	105	1,097	247	82
East South Central				
Kentucky	8	76	28	73
Tennessee	14	171	39	81
Alabama	9	55	46	55
Mississippi	2	5	8	38
Totals	33	307	121	72
West South Central				
Arkansas	4	37	8	82
Louisiana	10	184	60	75
Oklahoma	7	56	26	68
Texas	27	330	106	76
Totals	48	607	200	75
Mountain				
Montana	2	3	5	38
Colorado	12	140	10	93
Arizona	6	55	6	90
Utah	7	51	23	69
Totals	27	249	44	85
Pacific				
Washington	15	152	35	81
Oregon	7	64	25	72
California	52	802	81	91
Totals	74	1,018	141	88
Territories and Possessions				
Canal Zone	1	12	..	100
Hawaii	4	48	3	94
Puerto Rico	5	44	8	85
Totals	10	104	11	90
Grand totals	850	9,066	1,982	82

increase in the internship occupancy rate of 4% over last year; this increase is reflected in the rates for the census regions, each region in the continental United States having a higher rate than last year. Hospitals located outside the continental United States—those in the Canal Zone, Hawaii, and Puerto Rico—had 90% of their intern positions filled, the highest regional figure. The Pacific region had an occupancy rate of 88%, the highest in the United States. The region having the lowest percentage of intern positions filled was the East South Central region, with a rate of 72%. Occupancy rates varied in individual states from 100% in New Hampshire to 38% in Mississippi and Montana. These states, however, represent a small number of hospitals with one hospital approved in New Hampshire, while Montana and Mississippi each have two approved hospitals.

It is of interest to note that in the Middle Atlantic States—New York, New Jersey, and Pennsylvania—there are located more than one-fourth of all approved hospitals, one-fourth of the approved internships, and one-fourth of all interns on duty in approved hospitals. These figures correspond roughly to the proportion of the total population of the United States living in these three states. Of these three states, Pennsylvania showed the smallest percentage of internships filled, 75%, which was considerably below the national average. There are no hospitals approved for intern training in Idaho, New Mexico, Nevada, and Wyoming.



Monthly stipends, by medical school affiliation, excluding federal hospitals. Solid line indicates nonaffiliated hospitals (609) and dashed line indicates affiliated hospitals (201). Abscissa gives upper level of stipend range.

INTERNSHIP STIPENDS

A survey of the allowances offered interns in approved hospitals is shown in table 6. In tabulating these statistics, the number of hospitals paying a monthly stipend in the designated category is indicated in the first column under each listed stipend range. The number in the second, third, and fourth columns show the allowances given the intern in addition to the monetary stipend. Additional allowances offered refer to such items as laundry, uniforms, bonus, and health insurance.

All federal hospitals have been omitted from this listing. For purposes of comparison, hospitals have been classified as nonaffiliated and affiliated (major and minor teaching) groups. In the nonaffiliated group, which comprises three-fourths of the approved hospitals, the greatest concentration of cash stipends is centered in the classification $101-$150 (table 6). All hospitals in this group pay a cash stipend; only one pays $25 or less, and 17 pay more than $250. In addition to the stipend, 529 hospitals, or 87%, offer full maintenance; 61, or 10%, give partial maintenance; and 19 hospitals, or 3%, paid a cash stipend only. Other additional allowances are offered by 498 hospitals, or 82% of the group.

Table 6.—*Stipends, by Medical School Affiliation and Bed Capacity, 1954-1955* *

	None				$25 or Less				$26-$50				$51-$100				$101-$150				$151-$200				$201-$250				$251-Over				
	No. of Hospitals	Full Maintenance	Partial Maintenance	Additional Allowances	No. of Hospitals	Full Maintenance	Partial Maintenance	Additional Allowances	No. of Hospitals	Full Maintenance	Partial Maintenance	Additional Allowances	No. of Hospitals	Full Maintenance	Partial Maintenance	Additional Allowances	No. of Hospitals	Full Maintenance	Partial Maintenance	Additional Allowances	No. of Hospitals	Full Maintenance	Partial Maintenance	Additional Allowances	No. of Hospitals	Full Maintenance	Partial Maintenance	Additional Allowances	No. of Hospitals	Full Maintenance	Partial Maintenance	Additional Allowances	No. of Hospitals
Nonaffiliated																																	
Less than 200 beds...	..	..	..	..	1	1	..	1	3	3	..	3	37	33	3	30	58	55	2	45	46	45	1	32	17	13	3	15	7	2	5	7	169
200-299................	..	..	..	..	..	..	..	..	4	4	..	3	65	65	..	55	72	60	12	61	75	70	4	65	24	15	7	19	7	2	3	5	247
300-499................	..	..	..	..	..	..	..	..	4	4	..	4	52	48	3	44	45	41	4	35	40	32	7	32	15	8	4	13	2	1	..	2	158
500-over..............	..	..	..	..	..	..	..	..	1	1	..	1	11	11	..	8	11	9	2	9	9	4	..	7	2	1	1	2	1	1	..	..	35
Totals.............	..	..	..	..	1	1	..	1	12	12	..	11	165	157	6	137	186	165	20	150	170	151	12	136	58	37	15	49	17	6	8	14	609
Affiliated (Major and Minor Teaching)																																	
Less than 200 beds...	..	..	..	..	1	1	..	1	3	3	..	2	7	7	..	7	11	8	2	9	4	2	1	3	2	2	..	2	..	..	..	..	28
200-299................	..	..	..	..	2	2	..	2	4	4	..	4	22	20	2	16	9	7	2	7	3	2	1	1	..	..	..	..	..	..	..	..	40
300-499................	2	2	..	1	6	6	..	6	8	8	..	7	25	21	4	18	16	10	5	11	9	6	2	8	3	1	1	1	..	..	..	..	69
500-over..............	2	1	..	1	15	14	1	13	15	14	1	10	15	14	1	13	10	4	3	8	6	2	1	5	1	..	..	1	..	..	..	..	64
Totals.............	4	3	..	2	24	23	1	22	30	29	1	23	69	62	7	54	46	29	12	35	22	12	5	17	6	3	1	4	..	..	..	..	201
Grand totals.......	4	3	..	2	25	24	1	23	42	41	1	34	234	219	13	191	232	194	32	185	192	163	17	153	64	40	16	53	17	6	8	14	810*

* Excludes federal hospitals.

In the affiliated group of 201 hospitals, the largest number pay stipends in the $51-$100 range. Four hospitals that have 300 or more beds give no monetary allowance. Only six hospitals in this group offer more than $200, and no hospital offers more than $250. A total of 161, or 80%, of these hospitals furnish full maintenance; 27, or 13%, furnish partial maintenance; and 13, or 7%, pay only a cash stipend. One hundred fifty-seven hospitals, representing 78% of this group, offer other prerequisites.

The average cash stipend offered interns by the nonaffiliated group for the year 1955 is $136 monthly; the amount paid by the affiliated hospitals is considerably less, the average being $87 per month. These averages are almost the same as last year's figures, which were $135 and $84 respectively. Although the average stipend in the nonaffiliated hospitals is $49 higher than that for the affiliated hospitals, the over-all internship occupancy rate for nonaffiliated hospitals for 1955 is 80%; that for the affiliated hospitals is 84%. It may, therefore, be concluded that the amount of the stipend is not the decisive factor for the graduating medical student in determining which internship he will select.

AUTOPSY RATES

A 25% autopsy rate on hospital deaths must be maintained by each hospital to qualify for approval for intern training. For the last reporting period (1954), all hospitals approved for internships submitted data from which their autopsy rates were computed. The average autopsy rate for these hospitals was 45%, or 20% more than the required minimum standard. The rate for federal hospitals was 61%; for other hospitals located in the United States, 44%, and for approved hospitals located outside the United States, 53%. Twenty-five hospitals (3%) had an autopsy rate of less than 25%. These hospitals must raise their autopsy rate for the next reporting period in order to qualify for continued approval. Table 7 includes a list of 20 federal and 20 nonfederal hospitals, approved for internships during the reporting period, that had the highest autopsy rates. The autopsy rate is considered an accurate index of the interest of the medical staff and the hospital administration in medical education and in scientific medical progress. Two-thirds of these listed hospitals were named in a similar table.[2]

AD HOC COMMITTEE ON INTERNSHIPS

The Ad Hoc Committee on Internships, a special committee composed of members of the House of Delegates of the American Medical Association, which was appointed in February, 1954, presented its final report last November.[3] This report was the result of an exhaustive study of the internship and its problems and included specific conclusions and recommendations. It was referred to the Council on Medical Education and Hospitals for its study and guidance. The Council presented a summary of the report to the House of Delegates, which was adopted in June, 1955.[4] The conclusions and recommendations of the Ad Hoc Committee on Internships, as presented by the Council and adopted by the House of Delegates, will be incorporated in a revision of the Essentials of an Approved Internship, to be published in January, 1956.

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[2] Approved Internships and Residencies in the U. S.: Annual Report of Internships and Residencies by the Council on Medical Education and Hospitals of the American Medical Association, J. A. M. A. **156**:315 (Sept. 25) 1954.

[3] Report of the Ad Hoc Committee on Internships, Proceedings of the Miami Clinical Meeting, J. A. M. A. **157**:48-52 (Jan. 1) 1955.

TABLE 7.—*Internship Hospitals with Highest Autopsy Rates, 1954*

	FEDERAL	
1.	U. S. Naval Hospital, Jacksonville, Fla	99
2.	Valley Forge Army Hospital, Phoenixville, Pa	95
3.	Veterans Administration Hospital, Houston, Texas	91
4.	Brooke Army Hospital, Fort Sam Houston, San Antonio, Texas	91
5.	Fitzsimons Army Hospital, Denver	90
6.	U. S. Naval Hospital, Bremerton, Wash	90
7.	U. S. Public Health Service Hospital, Seattle	90
8.	Letterman Army Hospital, San Francisco	89
9.	U. S. Naval Hospital, Portsmouth, Va	87
10.	U. S. Naval Hospital, San Diego, Calif	86
11.	U. S. Naval Hospital, Great Lakes, Ill	86
12.	U. S. Naval Hospital, Oceanside, Calif	85
13.	Veterans Administration Hospital, Oklahoma City	85
14.	Madigan Army Hospital, Tacoma, Wash	85
15.	Gorgas Hospital, Ancon, C. Z	85
16.	Walter Reed Army Hospital, Washington, D. C	84
17.	Veterans Administration Hospital, Los Angeles	83
18.	U. S. Naval Hospital, Oakland, Calif	83
19.	Veterans Administration Hospital, McKinney, Texas	83
20.	Tripler Army Hospital, Honolulu, T. H	83
	NONFEDERAL	
1.	St. Luke's Hospital, Duluth, Minn	94
2.	Childrens Hospital, Los Angeles	91
3.	Overlook Hospital, Summit, N. J	90
4.	University of Illinois Research and Educational Hospitals, Chicago	88
5.	University of Nebraska Hospital, Omaha	88
6.	Mary Hitchcock Memorial Hospital, Hanover, N. H	84
7.	University of Minnesota Hospitals, Minneapolis	83
8.	Miami Valley Hospital, Dayton, Ohio	83
9.	Milwaukee Children's Hospital, Milwaukee	83
10.	Children's Medical Center, Boston	82
11.	Montana Deaconess Hospital, Great Falls, Mont	82
12.	Lincoln General Hospital, Lincoln, Neb	80
13.	Colorado General Hospital, Denver	79
14.	Providence Hospital, Portland, Ore	79
15.	Evanston Hospital, Evanston, Ill	78
16.	Minneapolis General Hospital, Minneapolis	78
17.	Norwegian Lutheran Deaconesses' Home and Hospital, Brooklyn	78
18.	North Carolina Memorial Hospital, Chapel Hill, N. C	78
19.	Mary Fletcher Hospital, Burlington, Vt	77
20.	University Hospital, Ann Arbor, Mich	76

INTERNSHIP REVIEW COMMITTEE

The Internship Review Committee was established early in 1954. It is a permanent committee that acts in an advisory capacity to the Council. It recommends approval or disapproval of new and currently approved intern training programs, after a thorough analysis of the data submitted by the hospital and review of the report of the field representative of the Council that is submitted on completion of his survey of the program. In setting up the committee the Council has sought the cooperation of other national organizations concerned with intern education. In addition to members of the Council, the committee includes representation from the American Hospital Association, the Association of American Medical Colleges, the Federation of State Medical Boards in the United States, and the American Academy of General Practice. This committee continuously studies the problems and the content of the internship and makes recommendations to the Council that will assure the maintenance of high educational standards in approved hospitals and a year of sound clinical education and experience for the intern.

NATIONAL INTERN MATCHING PROGRAM

The National Intern Matching Program has completed four years of successful operation as the agent for appointing medical school graduates to internships in hospitals approved for such training by the Council on Medical Education and Hospitals. As a result of a detailed study of the policies and methods of the Matching Program, the Ad Hoc Committee on Internships concluded: "It is the opinion of this committee that the mechanical plan of matching interns and hospitals, as accomplished by the National Intern Matching Program, is more efficient than any other plan previously used and gives full effect to the freely expressed desires of both hospital and intern with complete objectivity. The committee approves of the Matching Plan."

The Ad Hoc Committee pointed out that there was some criticism of the program due, in all probability, to a misunderstanding of the method of operation. Acting on this information, the Matching Program began an intensive effort to provide detailed information regarding its activities to all concerned, including medical schools, approved hospitals, graduating medical students, and the medical profession as a whole. Explanatory material was distributed to interested individuals and organizations, outlining the policies and methods of operation of the Matching Program.

Other organizations interested in the internship along with the Council on Medical Education and Hospitals of the American Medical Association determine the policies under which the program operates. These are the American Hospital Association, the American Protestant Hospital Association, the Catholic Hospital Association, and the Association of American Medical Colleges. Also on the policy-making committee are two medical student representatives; one is appointed by the Student American Medical Association, the other is a student delegate at large. Each of the federal services conducting intern training programs has a liaison representative to the committee.

The National Intern Matching Program offers a method of intern placement consistent with American principles of individual freedom. Its basic principle of operation is to preserve freedom of choice for both the student and the hospital. The program does not approve, restrict, or control the internships offered by hospitals; it does not allocate or distribute interns. Its sole purpose is to facilitate the orderly placement of senior medical students in first year internships.

Hospitals participating in the program are limited to those approved by the Council on Medical Education and Hospitals for intern training. In the internship and residency section of THE JOURNAL, as prepared and published by the Council, hospitals offering approved internships that do not participate in the Matching Program are appropriately designated. The directory of participating hospitals, as distributed to all senior medical students by the Matching Program, is based on the Internship and Residency Number of THE JOURNAL; hospitals not participating in the program are not included in the reprint that is sent to the applicants for internships and to medical schools. The Matching Program sends to each senior medical student a pamphlet explaining in detail its purpose and its method of operation. Due to the efforts made to clarify the operations of the program, there is a better understanding of its work than previously existed. The program has been established as the official and generally accepted method of appointing interns.

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[4] Report of the Council on Medical Education and Hospitals, Organization Section, J. A. M. A. 158: 53-54 (May 7) 1955.

For the year 1955-1956, more than 98% of the hospitals approved by the Council for intern training participated in the Matching Program. Approximately 96% of graduating medical students in 1955 registered in the program. Of the 6,713 students seeking appointments, 6,379, or 95%, were successfully matched. Of this number, 76% were matched with hospitals they had listed as their first choice; 14% were matched with hospitals they had listed as their second choice; and 10% were matched with hospitals they had listed as third choice or lower. A total of 334 students were not matched. The number of unmatched participants is attributed to the fact that in general they had applied to a limited number of hospitals. This resulted in restricting their chances for appointment, since the hospitals listed had filled their quotas with applicants whom they preferred or did not wish to appoint the particular student as intern.

Of the hospitals participating in the Matching Program, 16% completely filled their intern quotas; 52% partially filled their quotas, while 32% had no interns matched. Student participation in the Matching Program is expected to increase slightly for the year 1956-1957. The return of Matching Program Agreements, which have been distributed to approved hospitals for 1956-1957, indicate that at least an equal number of hospitals will participate in the program, as did last year.[5]

INTERNS AND RESIDENTS FROM FOREIGN COUNTRIES

According to a survey made by the Institute of International Education in September, 1954, there were 5,036 graduates of foreign medical schools in 83 countries serving as interns or residents in United States hospitals approved by the Council for this training.[6] This figure applied to citizens of other countries who intend to return to their home countries when their training assignments in the United States are completed; it did not include displaced persons, physicians coming to the United States to establish residence, or persons from United States possessions and territories; nor did it include foreign physicians serving in hospitals not approved by the Council. The 12 countries having the largest representation were: Philippines 776, Canada 520, Mexico 425, Germany 323, Turkey 253, Italy 242, Cuba 184, China 170, India 165, Korea 151, Greece 155, and Japan 139.

McCormack and Feraru[6] reported that of the total number of foreign physicians taking graduate training in this country, 3,275, or 65%, were serving as residents; 1,761 were interns. In tabulating statistics on the residents taking specialty training, it was found that the two largest groups were in general surgery and general medicine. Other fields in which training was being given were, in order, obstetrics and gynecology, pediatrics, pathology, psychiatry, anesthesiology, radiology, and otolaryngology.

These foreign physicians were found to be training in 42 states, the District of Columbia, Puerto Rico, Hawaii, and the Canal Zone. A total of 1,186, 24%, were concentrated in the state of New York. Other states having sizable numbers of these physicians were Ohio, 424; Massachusetts, 405; Illinois, 396; New Jersey, 348; Pennsylvania, 262; Missouri, 216; Michigan, 184; Maryland, 172; and California, 160.

The present policy of the Council is that graduates of foreign medical schools may be appointed to the intern or resident staff of a hospital without prejudice to its approved status. Responsibility for the evaluation of the applicant's qualifications must be assumed by the hospital, however, in those cases in which the applicant is a graduate of a school other than those included in the list prepared by the Council in collaboration with the Association of American Medical Colleges.[7]

The Cooperating Committee on Evaluation of Graduates of Foreign Medical Schools is presently studying the entire problem of foreign medical school graduates, with particular reference to graduate training for these physicians. The Committee is composed of representatives of the following interested organizations: the Council on Medical Education and Hospitals of the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and the Federation of State Medical Boards in the United States.

Residencies

The further expansion of residency training in the United States is reflected in the three tables included in this section of the Annual Report. The Council currently approves residency programs in 29 specialties and subspecialties. These programs are conducted in 1,181 general or special hospitals, the majority of which are also approved for intern training.

Early in 1953, the Council entered into discussions with the American boards in the medical specialties for the purpose of establishing joint committees with representatives from both organizations, the function of these committees being primarily that of responsibility for the evaluation and approval of residency programs in the specialty concerned. The forerunner for these committees was the Residency Review Committee for

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[5] For further information on the program, address request to Director of Operations, National Intern Matching Program, Room 2009, 185 N. Wabash Ave., Chicago 1.

[6] McCormack, J. E., and Feraru, A.: Alien Interns and Residents in the United States, J. A. M. A. 158: 1357 (Aug. 13) 1955.

[7] Medical Licensure Statistics for 1954, 53rd Annual Presentation of Licensure Statistics by the Council on Medical Education and Hospitals of the American Medical Association, J. A. M. A. 158: 292 (May 28) 1955.

Internal Medicine, which was originally established prior to World War II with representatives from the Council, the American Board of Internal Medicine, and the American College of Physicians. In 1950 a similar committee, the Conference Committee on Graduate Training in Surgery, was established. As in internal medicine, this committee included representatives from the college, as well as from the board, i. e., American College of Surgeons and American Board of Surgery. Residency Review Committees are now functioning in 16 separate fields including dermatology, internal medicine, neurological surgery, ophthalmology, orthopedic surgery, otolaryngology, pediatrics, physical medicine, plastic surgery, preventive medicine, proctology, psychiatry, radiology, surgery, and urology. A Residency Review Committee for General Practice with representatives from the American Academy of General Practice and the Council has been established during the past year. In four specialties, anesthesiology, obstetrics-gynecology, pathology, and thoracic surgery, the Council approves programs in concurrence with the board concerned, each organization however, taking action unilaterally.

TABLE 8.—*Number of Residencies, by Specialty, 1954-1955*

		No. of Residencies					
		First Year Appointments			Total Appointments (All Years)		
Specialty	No. of Approved Programs	Filled Sept. 1, 1954	Vacant Sept. 1, 1954	Percentage Filled	Filled Sept. 1, 1954	Vacant Sept. 1, 1954	Percentage Filled
Allergy	17	16	7	70	20	14	59
Anesthesiology	188	415	91	82	849	180	83
Cardiovascular disease	29	33	5	89	57	11	84
Contagious diseases	11	22	2	92	27	2	93
Dermatology-syphilology	76	90	12	89	226	33	87
Gastroenterology	23	27	6	82	51	12	81
General practice	155	346	133	72	404	210	66
Internal medicine	578	1,689	396	81	3,919	909	81
Malignant diseases	11	21	7	75	25	9	74
Neurological surgery	74	68	15	82	219	43	84
Neurology	79	93	41	69	188	82	70
Obstetrics	63	94	16	86	142	28	82
Gynecology	12	16	1	94	50	1	98
Obstetrics-gynecology	374	637	100	86	1,597	218	80
Ophthalmology	168	196	47	81	517	99	84
Orthopedic surgery	261	246	68	78	769	175	81
Otolaryngology	112	100	62	62	267	126	68
Pathology	512	486	247	66	1,130	637	64
Pediatrics	246	638	84	88	1,197	164	88
Physical medicine	52	39	34	53	79	86	48
Plastic surgery	31	17	8	72	62	10	86
Preventive medicine	17	21	44	32	26	45	37
Proctology	12	6	5	55	21	10	68
Psychiatry	265	705	323	69	1,800	706	72
Pulmonary diseases	100	187	63	75	270	98	73
Radiology	415	451	228	66	1,219	404	75
Surgery A *	532	1,584	165	91	4,513	423	91
Surgery B †	126	171	52	77	219	83	73
Thoracic surgery	68	72	8	90	145	18	90
Urology	227	158	74	68	486	156	76
Totals	4,834	8,644	2,345	79	20,494	4,992	80

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* Surgery A includes programs leading to certification by the American Board of Surgery.

† Surgery B includes programs approved as offering training in general surgery in preparation for a residency in a surgical specialty.

The following section of the Report presents statistical data on the number of residencies by specialties and the number of residencies by type of hospital control and by bed capacities of the hospitals in which the training is conducted. The number of residencies filled and vacant represent the situation as of Sept. 1, 1954. The total number of residency appointments available increased from 23,628 reported last year to 25,486 this year, an increase of 8%. The number of residents serving also rose, from 18,617 during the year 1953-1954 to 20,494 during 1954-1955, representing a 10% increase. It can be assumed on the basis of available data, that the largest proportion of this increase was due to the number of graduates of foreign medical schools serving as residents in approved hospitals. The percentage of residencies filled remained comparatively the same with 80% filled this year, compared with 79% a year ago.

NUMBER OF RESIDENCIES, BY SPECIALTIES

Table 8 presents a breakdown by specialties of the number of approved programs, the number of first year appointments filled and vacant as of Sept. 1, 1954 and the total number of appointments filled and vacant for the same date. There were 4,834 separate residency programs conducted last year in 1,181 hospitals, offering a total of 25,486 appointments including 10,989 at the first year level.

The number of hospitals approved for training ranged from 11 offering residencies in contagious diseases 578 in internal medicine. The clinical specialties of ternal medicine, obstetrics-gynecology, pediatrics, p chiatry, and surgery, along with pathology and radiol accounted for slightly more than three-fourths of residencies offered, with 19,359 positions available these specialties out of a total of 25,486. There w less than 100 appointments in each of the follow specialties: allergy, 34; cardiovascular diseases, 68; c tagious diseases, 29; gastroenterology, 63; malign diseases, 34; plastic surgery, 72; preventive medici 71; and proctology, 31.

The percentage range of first year residencies fil varied from 32% of those in preventive medicine 94% of the programs offering a straight service gynecology. Similarly, for appointments at all levels, percentage filled in preventive medicine was the lowe 37%, while those in straight gynecology had the high occupancy rate, 98%.

Of those specialties constituting the majority of re dencies offered, pathology residencies showed the low occupancy rate for all years, 64% (first through fou year appointments) while surgery showed the highe 91%. Specialties in which more than 25% of residenci were vacant included the following: allergy, gene practice, malignant diseases, neurology, otolaryngolog pathology, physical medicine, preventive medicine, pro tology, psychiatry, and pulmonary diseases. In conside ing the relatively high vacancy rate in some of the specialties, particularly pathology and psychiatry, t proportionately large number of positions availab should be taken into account; 1,130 residents serving last year in approved pathology programs and 1,800 in psychiatric residencies.

As was the case last year, the percentage of all internships filled and that of all residencies were approximately the same, 82% in the case of internships and 80% for residencies. This fact again points up the similarity of the problem of house staffing, whether at the internship or residency level. In considering possible solutions, the singling out of internship vacancies as a separate problem may well be considered unrealistic, representing as it does only a part of the over-all question of house staffing.

TABLE 9.—*Number of Residencies, by Type of Hospital Control, 1954-1955*

Control	No. of Approved Hospitals	No of Approved Programs	No. of Residencies					
			First Year Appointments			Total Appointments (All Years)		
			Filled Sept. 1, 1954	Vacant Sept. 1, 1954	Percentage Filled	Filled Sept. 1, 1954	Vacant Sept. 1, 1954	Percentage Filled
Federal								
U. S. Army	12	82	105	59	64	324	144	69
U. S. Air Force	4	7	6	5	55	7	5	58
U. S. Navy	8	75	29	48	38	134	128	51
U. S. Public Health Service	8	32	35	0	100	112	14	81
Veterans Administration	82	465	712	460	61	2,252	872	72
Other Federal	3	20	36	6	82	80	17	82
Totals	117	681	923	578	61	2,909	1,180	71
Governmental (Nonfederal)								
State	170	499	1,270	350	78	3,202	704	82
County	61	256	609	100	86	1,198	201	86
City	78	411	1,091	133	89	2,384	303	89
City-county	17	113	174	30	85	389	86	82
Hospital district	4	4	3	2	60	6	2	75
Totals	314	1,267	3,150	615	84	7,179	1,296	85
Nongovernmental Nonprofit								
Church operated	68	244	311	130	71	664	304	68
Church related	221	751	1,098	331	77	2,462	743	77
Corporation nonprofit	442	1,832	3,112	682	82	7,173	1,442	83
Totals	721	2,827	4,521	1,143	80	10,299	2,489	81
Proprietary	29	43	50	9	85	107	27	80
Grand Totals	1,181	4,834	8,644	2,345	79	20,494	4,992	80

TABLE 10.—*Number of Residencies, by Bed Capacity, 1954-1955*

Classification	No. of Approved Hospitals	No. of Approved Programs	No. of Residencies					
			First Year Appointments			Total Appointments (All Years)		
			Filled Sept. 1, 1954	Vacant Sept. 1, 1954	Percentage Filled	Filled Sept. 1, 1954	Vacant Sept. 1, 1954	Percentage Filled
Less than 100 beds	84	94	142	25	85	304	76	80
100-199	226	436	661	182	80	1,329	349	79
200-299	292	964	1,224	414	75	2,586	814	76
300-499	288	1,572	2,452	630	80	5,465	1,432	79
500-over	291	1,752	4,145	1,050	80	10,785	2,277	83
Other	16	16	20	44	31	25	44	36
Grand Totals	1,181	4,834	8,644	2,345	79	20,494	4,992	80

RESIDENCIES, BY TYPE OF HOSPITAL CONTROL

A breakdown of residency appointments by type of hospital control is presented in table 9. Residency programs were offered in 117 federal hospitals, 314 other governmental (nonfederal) hospitals, 721 nongovernmental institutions, and 29 hospitals of a proprietary nature. The total number of residency appointments was about equally divided between governmental and nongovernmental hospitals with those in the former category offering 12,564 residencies while those in the latter had 12,922 appointments available.

Of the federal group, the Veterans Administration accounted for over three-fourths of the total, with 3,120 residency positions offered out of 4,089 for all federal hospitals. The occupancy rate for all federal hospitals, including the Veterans Administration was about 8% below that for the nation as a whole, 72% as contrasted to 80%. Comparable figures for last year showed 75% of residencies in federal hospitals filled and 79% for all hospitals. Considering appointments in all categories, the occupancy rate varied from 51% in U. S. Naval hospitals to 89% in city-controlled institutions. If first year appointments only are considered, the disparity in occupancy rates between federal and all other hospitals is even more marked. The U. S. Naval hospitals reported 38% of their first year appointments filled, the U. S.

Air Force 55%, the Veterans Administration 61%, the U. S. Army 64%, and other federal institutions 82%. The rates for other governmental (nonfederal) hospitals were well above these figures, ranging up to 89%, as were those in the nongovernmental group in which the rates ranged from 71% for church operated to 82% for the not-for-profit group.

In spite of the fact that the occupancy rate in federal hospitals fell below that of other approved hospitals, the number of residents serving in these programs increased over last year; there were 2,909 residents on duty in these hospitals as of Sept. 1, 1954 compared with 2,711 a year before. The seeming disparity between an increase in the number of residents serving and a decrease in occupancy rate in federal hospitals is due of course to the fact that 428 more residencies were available in these hospitals this year. This represents an approximate 12% increase for this group, as compared to a 7% increase over last year for all other hospitals.

NUMBER OF RESIDENCIES, BY HOSPITAL BED CAPACITIES

Excluding hospitals of less than 100 beds, the number of hospitals offering residency training are, roughly speaking, about equally divided into four categories, 100 to 199 bed capacity, 200 to 299, 300 to 499, and over 500 beds (table 10). The number of residencies offered in these hospitals however, varied considerably, with those in the 100 to 199 bed category offering 1,678 positions, or approximately 7% of the total and those of 500 beds and over, having 13,062 positions available or 52% of the total. Hospitals of bed capacities 200 to 299 and 300 to 499 offered an additional 10,297 residencies, or 40%. Hospitals of less than 100 beds and programs in institutions of undesignated bed capacities accounted for the remaining 1%.

A word of explanation may be in order regarding those hospitals of less than 100 beds, since they would appear to be of too small size to support a residency program. For the most part, they are hospitals of special type providing services in one or two specialties only such as children's orthopedic surgery; eye, ear, nose, and throat; obstetrics; pediatrics; and similar specialized fields. In these hospitals, the admission rate approximates that for a service in a larger general hospital. They offered a relatively insignificant number of residencies.

While the average number of residencies per hospital in the several categories listed may not be too important, it is of some significance in considering the distribution of residents. The averages are as follows: 100 to 199 beds, 7.4 residents per hospital; 200 to 299 beds, 11.6 residents; 300 to 499, 24 residents; and 500 and over, 44.8 residents per hospital. Since the total number of beds for all hospitals in each category has not been computed, the average number per resident cannot be accurately given. Using the mean number of beds for each category however, it can be estimated that the number of beds per resident vary from 12.5 in the 300 to 499 group, to 21.5 in the 200 to 299 category. A further variable in considering these rough estimates is of course the specialty itself; the number of beds that would be adequate for an obstetric service, for example, would be insufficient to support a program in orthopedic surgery.

On the basis of these incomplete data, however, it does not appear that there is a marked disproportion between the number of residencies and the size of the hospital. This generalization does not of course eliminate the possibility that there may be an "overloading" of residents in some hospitals. It does tend to show, however, that there is, on the average, a reasonable number of beds per resident in the majority of hospitals approved for residency training.

Résumé

An analysis of 10 statistical tables relating to internship and residency positions has been presented in this report, along with a brief review of the National Intern Matching Program and of the activities of the committees established to evaluate graduate training programs at the internship and residency levels.

As of Sept. 1, 1954, there were 1,364 hospitals sponsoring such programs; 159 were approved for intern training only, 515 for residency training only, and 690 that offered approved training in both categories. The number of internships rose from 10,624 offered a year ago to 11,048 this year, an increase of 4%. Similarly, the number of residencies increased during the past year from 24,741 to 25,486 or 3%.

A total of 29,560 physicians were on duty in approved hospitals during the past year, 9,066 in the capacity of interns and 20,494 as residents. The occupancy rate for internships in 1954 was 82% as compared to 78% a year before. That for residencies was 80%, approximately the same as reported in last year's report when 79% of appointments were filled.

The report points out that internship vacancies and residency vacancies are part of the same general problem. It calls attention also to the fact that an increasing number of graduates of foreign medical schools are serving in house staff positions in hospitals throughout the country. This development has been well recognized although the extent to which these graduates have been appointed has been, perhaps, less generally appreciated. Reference is made in the report to a committee, the Cooperating Committee on Evaluation of Graduates of Foreign Medical Schools, which has been established to study the problems presented in evaluating these graduates as potential interns and residents in hospitals in this country. Information on interns' stipends and hospital autopsy rates is presented along with analysis of internship appointments. Similarly, the section on residencies presents data on those programs, which from the standpoint of number involved, represent 70% of all house staff appointments, internships accounting for the remaining 30%. The report is factual in nature and is presented for the information of the profession and others interested in the graduate phase of medical education.

APPROVED INTERNSHIPS

Council on Medical Education and Hospitals of the American Medical Association
535 North Dearborn Street, Chicago 10

Revised to September 1, 1955

HOSPITALS, 865, INTERNSHIPS, 11,645

The following general hospitals, investigated and approved by the Council on Medical Education and Hospitals, are considered position to furnish acceptable intern training in accordance with standards adopted by the American Medical Association. Three pes of internships are approved by the Council—rotating, mixed, and straight:

1. A rotating internship is defined as one which provides supervised experience in internal medicine, surgery, pediatrics, obstetrics, d their related subspecialties, together with experience in laboratory and radiologic diagnosis.
2. A mixed internship is defined as one that provides supervised experience in two or more, but not in all, of the clinical visions named.
3. A straight internship is defined as one that provides supervised experience in a single department, although it may include nited opportunity for work in a related subspecialty. Straight internships are now approved in internal medicine, surgery, and diatrics. Straight internships in obstetrics-gynecology and in pathology are presently approved through June 30, 1957.

Hospitals approved for internships that are used by medical schools for undergraduate clinical clerkships on inpatient services ve been identified in the following lists by the symbols X and x. Hospitals have been identified with symbol X when a medical hool has indicated that the hospital is a major unit in the school's teaching program. Hospitals have been identified with the symbol when a medical school has indicated that the hospital is used to a limited extent in the school's teaching program. Certain intern- ips in hospitals designated as teaching hospitals may not provide for assignments to teaching services. Other internships may ovide for only a portion of the internship period being spent on teaching services. Prospective interns desiring specific information ncerning internship assignments to teaching services in a hospital are advised to communicate with the dean of the medical school ith which the hospital is affiliated. Medical school affiliations are indicated by footnotes 10 to 88 placed immediately after the mbol X or x. The list of medical schools appears on page 283. The plus (+) sign indicates additional approval for residencies in ecialties, as shown in the Council's list of Approved Residencies and Fellowships. The beginning stipends for Federal hospitals have t been listed; they are established in accordance with government pay tables. When applying for internships in Air Force, Army, avy or Public Health Service hospitals, applications should be directed to the medical departments of the Air Force, Army, Navy, the United States Public Health Service and not to the individual hospitals. Although applications are made to the service rather an to the individual hospitals, all of the services ask students to list three hospitals in order of preference. Every possible effort made to place successful candidates in accordance with their desires. Because of the needs of the service it should be understood at students may, in some instances, be assigned to other hospitals than those for which they have indicated a preference.

Hospitals listed below (pages 261 to 282) make first year internship appointments through the National Intern Matching rogram, Inc. The number and type of internships as listed represent appointments for the intern year 1956-1957.

FEDERAL

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
UNITED STATES ARMY—Hospitals, 8; Internships, 150										
etterman Army Hospital $^{+1-4}$ Presidio, San Francisco	Fed	1,000	11,315	Req	89	12	No	...	150 Rotating General Office of the Surgeon General, Department of the Army, Washington 25, D. C. Attn. Chief Personnel Division	00411
itzsimons Army Hospital $^{+1-4}$ Denver 8	Fed	1,650	9,416	Req	90	12	No	...		
alter Reed Army Hospital $^{+1-4}$-x19-20 (Army Medical Center) 6825 16th St., N. W., Washington 12, D. C.	Fed	1,350	13,446	Req	84	12	No	...		
alley Forge Army Hospital $^{+4}$ Phoenixville, Pa.	Fed	1,250	6,806	Req	95	12	100	...		
illiam Beaumont Army Hospital $^{+4}$ Hayes Ave., El Paso, Texas	Fed	850	12,109	Req	79	12	No	...		
rooke Army Hospital $^{+1-3-4}$ Brooke Army Medical Center Fort Sam Houston, San Antonio, Texas	Fed	1,350	13,753	Req	91	12	No	...		
adigan Army Hospital $^{+4}$-x83 Tacoma, Wash.	Fed	750	11,593	Req	85	12	No	...		
ripler Army Hospital + Moanalua Gardens, Honolulu, T. H.	Fed	1,200	16,308	Req	83	12	No	...		
UNITED STATES AIR FORCE—Hospitals, 11; Internships, 60										
The 60 Air Force internships are divided among the Army hospitals listed above.									60 Rotating General Directorate of Staffing and Education, Office of the Surgeon General, Headquarters, U. S. Air Force, Washington 25, D. C.	00311
UNITED STATES NAVY—Hospitals, 15; Internships, 200										
U. S. Naval Hospital Corona, Calif.	Fed	927	11,502	Req	90	12	No	...	200 Rotating General Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C.	00211
U. S. Naval Hospital $^{+1-4-5}$ 8750 Mountain Blvd., Oakland 14, Calif.	Fed	1,600	16,733	Req	83	12	No	...		
U. S. Naval Hospital $^{1-5}$ Camp Pendleton, Oceanside, Calif.	Fed	1,145	8,864	Req	85	12	No	...		
U. S. Naval Hospital $^{+1-4}$ Park Blvd., San Diego 34, Calif.	Fed	2,600	26,567	Req	86	12	No	...		
U. S. Naval Hospital $^{1-3}$ Jacksonville, Fla.	Fed	400	8,019	Req	99	12	No	...		
U. S. Naval Hospital $^{1-3}$ Pensacola, Fla.	Fed	325	7,399	Req	71	12	No	...		
U. S. Naval Hospital $^{+1-3-4}$ Great Lakes, Ill.	Fed	925	11,074	Req	86	12	No	...		
U. S. Naval Hospital $^{+1-3}$-x19 Rockville Pike, Bethesda 14, Md.	Fed	1,300	14,600	Req	81	12	No	...		
U. S. Naval Hospital $^{+1-4}$-x37 Chelsea 50, Mass.	Fed	887	8,183	Req	77	12	No	...		

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations. Abbreviations and other references will be found on pages 283 and 284.

FEDERAL—Continued

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships
UNITED STATES NAVY—Continued									
U. S. Naval Hospital $^{+1-4}$ Linden Blvd., St. Albans 25, N. Y.	Fed	1,375	8,972	Req	68	12	No	...	200 Rotating General Bureau of Medicine and Su Navy Department, Washington 25, D. C.
U. S. Naval Hospital $^{+1-3-4}$ 17th and Pattison Ave., Philadelphia 45	Fed	1,200	12,689	Req	67	12	No	...	
U. S. Naval Hospital 3rd and Cypress Sts., Newport, R. I.	Fed	500	6,884	Req	67	12	No	...	
U. S. Naval Hospital ^{1} Naval Base, Charleston, S. C.	Fed	400	5,380	Req	57	12	No	...	
U. S. Naval Hospital $^{+1-3-4}$ Portsmouth, Va.	Fed	1,550	23,270	Req	87	12	No	...	
U. S. Naval Hospital $^{1-3}$ Naval Base, Bremerton, Wash.	Fed	325	4,269	Req	90	12	No	...	
UNITED STATES PUBLIC HEALTH SERVICE—Hospitals, 7; Internships, 89									
U. S. Public Health Service Hospital $^{+1-4-5}$ 15th Ave. and Lake St., San Francisco 18	Fed	459	4,811	Req	68	12	101	...	78 Rotating General 11 Mix. Med. Surg. Public Health Service Ho Public Health Service, Department of Health Education and Welfar Washington 25, D. C. Attn. Chairman Commi on Residents and Inter
U. S. Public Health Service Hospital $^{+1-4-5}$ 210 State St., New Orleans 18	Fed	380	4,216	Req	82	12	102	...	
U. S. Public Health Service Hospital $^{+1-4}$ Wyman Park Dr. and 31st St., Baltimore 11	Fed	361	4,976	Req	78	12	103	...	
U. S. Public Health Service Hospital $^{+4}$ 77 Warren St., Boston 35	Fed	278	3,366	Req	77	12	No	...	
U. S. Public Health Service Hospital $^{+1-4-5}$ Bay St. and Vanderbilt Ave., Staten Island 4, N. Y.	Fed	837	9,253	Req	72	12	104	...	
U. S. Public Health Service Hospital $^{1-5}$ Hampton Blvd., Norfolk 8, Va.	Fed	271	3,631	Req	62	12	105	...	
U. S. Public Health Service Hospital $^{+1-4}$-x83 P. O. Box 3145, Seattle 14	Fed	352	4,345	Req	90	12	106	...	
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE—Hospitals, 2; Internships, 30									
Freedmen's Hospital $^{+1-3-4}$-X21 6th and Bryant Sts., N.W., Washington 25, D. C.	Fed	485	8,491	Req	46	12	No	171FM	18 Rotating General
Saint Elizabeths Hospital $^{+1-3-4}$-x19-X20 2600 Nichols Ave, S.E., Washington 20, D. C.	Fed	411	2,468	Req	48	12	107	233	12 Rotating General
VETERANS ADMINISTRATION—Hospitals, 8; Internships, 126									
Veterans Administration Hospital $^{+1-3}$ 5901 E. 7th St., Long Beach 4, Calif.	Fed	1,600	10,227	Req	76	12	109	...	24 Rotating General 6 Straight Medicine
Veterans Administration Center $^{+1-3}$-X13 Wilshire and Sawtelle Blvds., Los Angeles 25	Fed	1,358	12,526	None	83	12	110	...	24 Rotating General 6 Straight Medicine
Veterans Administration Hospital $^{+1}$-X22 5998 Peachtree Rd., N.E., Atlanta, Ga.	Fed	300	5,001	Req	74	12	111	...	7 Straight Medicine
Veterans Administration Hospital $^{+1}$-X63 921 N.E. 13th St., Oklahoma City	Fed	414	3,273	None	85	12	112	...	6 Straight Medicine
Veterans Administration Hospital $^{+1-5}$-X76 4500 S. Lancaster Rd., Dallas 2, Texas	Fed	347	3,243	None	75	12	113	...	16 Straight Medicine
Veterans Administration Hospital $^{+1-3-4}$-X78 2002 Holcombe Blvd., Houston 31, Texas	Fed	1,067	7,873	Req	91	12	114	...	20 Rotating General
Veterans Administration Hospital $^{+1-3}$-X76 McKinney, Texas	Fed	593	5,096	None	83	12	115	...	10 Straight Medicine
Veterans Administration Hospital $^{+}$-X79 12th Ave. and E St., Salt Lake City 3	Fed	194	2,373	Req	77	12	116	...	3 Rotating General 4 Straight Medicine

NONFEDERAL

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships
ALABAMA—Hospitals, 9; Internships, 108									
Birmingham Baptist Hospital $^{+1}$ 708 Tuscaloosa Ave., Birmingham 11	ChurchOpr	300	12,542	Req	39	12	117	250FM	12 Rotating General
Carraway Methodist Hospital $^{+1-3}$ 2506 16 Ave. N., Birmingham 4	ChurchRel	233	9,602	Req	32	12	No	200FM	9 Rotating General
St. Vincent's Hospital 2701 Ninth Ct. S., Birmingham 5	ChurchRel	200	7,642	Req	40	12	117	225FM	7 Rotating General
South Highlands Infirmary $^{1-3}$ 1127 S. 12th St., Birmingham 5	Corp	159	5,856	Req	32	12	117	200FM	6 Rotating General
University Hospital and Hillman Clinic $^{+1-3-4}$-X10 619 S. 19th St., Birmingham 3	State	601	24,842	Req	43	12	118	100FM	36 Rotating General 3 Straight Pediatrics
Lloyd Noland Hospital $^{+1-3}$ Fairfield	NPCorp	273	9,600	Req	48	12	No	150FM	12 Rotating General
Holy Name of Jesus Hospital $^{1-3}$ Moragne Park, Gadsden	ChurchRel	136	6,386	Req	40	12	No	150PM	3 Rotating General
City Hospital $^{+}$ 850 St. Anthony St., Mobile 16	CyCo	263	7,225	Req	44	12	No	150PM	15 Rotating General
Druid City Hospital ^{1} *809 Birmingham Rd., Tuscaloosa*	CyCo	240	11,255	Req	21	12	No	200FM	5 Rotating General
ARIZONA—Hospitals, 6; Internships, 59									
Good Samaritan Hospital $^{+1-3}$ 1033 E. McDowell Rd., Phoenix	ChurchRel	226	12,793	None	41	12	119	150FM	15 Rotating General
Maricopa County General Hospital $^{+1-3}$ 3435 W. Durango Rd., Phoenix	County	293	7,843	Req	37	12	No	150-200PM	4 Rotating General
Memorial Hospital $^{1-3}$ 1200 S. 5th Ave., Phoenix	NPCorp	189	6,354	Req	28	12	119	200FM	10 Rotating General
St. Joseph's Hospital $^{+1-3}$ 350 W. Thomas Rd., Phoenix	ChurchRel	320	15,243	Req	55	12	119	150-200FM	15 Rotating General
St. Mary's Hospital and Sanatorium $^{+1-3}$ St. Mary's Rd., Tucson	ChurchOpr	315	13,968	Req	38	12	120	100FM	9 Rotating General
Tucson Medical Center $^{+1-3}$ E. Grant Rd. and Beverly Blvd., Tucson	NPCorp	201	7,509	Req	38	12	120	100FM	6 Rotating General

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Abbreviations and other references will be found on pages 283 and 284.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
ARKANSAS—Hospitals, 3; Internships, 56										
rkansas Baptist Hospital +^{1} 1700 W. 13th St., Little Rock	ChurchOpr	305	13,827	None	27	12	121	200FM	12 Rotating General	01611
Vincent Infirmary +$^{1-3}$ Markham and Hayes Sts., Little Rock	ChurchRel	210	9,320	Req	31	12	121	200FM	12 Rotating General	01711
niversity Hospital +$^{1-3}$-X11 11th and McAlmont Sts., Little Rock	State	197	5,558	Req	63	12	122	135	16 Rotating General 2 Straight Medicine 4 Straight Pediatrics 6 Straight Ob.-Gyn. 4 Mixed (Ob.-Gyn.-Med.)	01811 01832 01834 01835 01809
CALIFORNIA—Hospitals, 44; Internships, 810										
eneral Hospital of Riverside County +$^{1-5}$ 9851 Magnolia Ave., Arlington	County	321	4,375	Req	47	12	123	170PM	8 Rotating General	85011
errick Memorial Hospital +$^{1-3-4}$ 2001 Dwight Way, Berkeley 4	NPCorp	201	9,031	Req	68	12	No	100FM	6 Rotating General	02011
an Joaquin General Hospital +^{1} French Camp	County	720	7,767	Req	55	12	No	150PM	15 Rotating General	02111
resno General Hospital +$^{1-4}$ 4175 E. Ventura Ave., Fresno 2	County	632	10,082	Req	37	12	No	195	20 Rotating General	02211
lendale Sanitarium and Hospital +^{1} 1509 E. Wilson Ave., Glendale 6	ChurchOpr	225	9,997	Req	50	12	No	152PM	12 Rotating General	02311
oma Linda Sanitarium and Hospital +$^{1-3}$-X12 Loma Linda	ChurchOpr	166	6,003	Req	61	12	No	192PM	8 Rotating General	02411
t. Mary's Long Beach Hospital $^{1-3}$ 509 E. 10th St., Long Beach 13	ChurchRel	250	14,162	Req	33	12	No	125FM	6 Rotating General	02611
easide Memorial Hospital +^{1} 1401 Chestnut Ave., Long Beach 13	NPCorp	370	18,226	Req	24	12	124	75FM	14 Rotating General	02711
alifornia Hospital +$^{1-3}$ 1414 S. Hope St., Los Angeles 15	ChurchRel	309	13,963	Req	40	12	125	125FM	13 Rotating General	02911
edars of Lebanon Hospital +$^{1-3}$ 4833 Fountain Ave., Los Angeles 29	NPCorp	466	14,567	Req	52	12	124	80FM	14 Rotating General	03011
hildrens Hospital +$^{1-3}$-X14 4614 Sunset Blvd., Los Angeles 27	NPCorp	224	8,451	Req	91	12	126	40FM	2 Straight Pediatrics	03134
lospital of the Good Samaritan +$^{1-3}$ 1212 Shatto St., Los Angeles 17	ChurchRel	480	14,194	Req	41	12	127	140FM	10 Rotating General	03211
os Angeles County Hospital +$^{1-4}$-X12-14 1200 N. State St., Los Angeles 33	County	3,206	82,138	Req	34	12	No	75FM	140 Rotating General	03311
lethodist Hospital of Southern California +$^{1-3}$ 2826 S. Hope St., Los Angeles 7	ChurchRel	206	8,447	Req	33	12	No	125FM	12 Rotating General	03411
resbyterian Hospital-Olmsted Memorial +$^{1-3}$ 1322 N. Vermont Ave., Los Angeles 27	ChurchRel	300	11,826	Req	33	12	127	75FM	10 Rotating General	03511
ueen of Angels Hospital +$^{1-3}$ 2301 Bellevue Ave., Los Angeles 26	ChurchOpr	480	18,584	Req	44	12	No	100FM	20 Rotating General	03611
t. Vincent's Hospital +^{3} 2131 W. 3rd St., Los Angeles 57	ChurchRel	243	10,064	Req	35	12	127	125FM	6 Mixed (Med.-Surg.-Ob.-Gyn.)	03722
anta Fe Coast Lines Hospital + 610 S. St. Louis St., Los Angeles 23	NPCorp	196	5,514	Req	61	12	127	125FM	9 Rotating General	03811
hite Memorial Hospital +$^{1-3}$-X12 312 N. Boyle Ave., Los Angeles 33	ChurchRel	207	8,737	Req	58	12	No	134PM	16 Rotating General	04011
Highland-Alameda County Hospital +$^{1-4-5}$ 2701 14th Ave., Oakland 6	County	429	12,605	Req	49	12	128	100FM	32 Rotating General	04111
Kaiser Foundation Hospital +$^{1-3}$ 280 W. MacArthur Blvd., Oakland 11	NPCorp	300	12,042	None	74	12	129	100	44 Rotating General	04211
range County General Hospital $^{1-3}$ 12071 Santa Ana Blvd., Orange	County	576	5,102	Req	48	12	No	192.50	20 Rotating General	04311
ollis P. and Howard Huntington Memorial Hospital +$^{1-3}$ 100 Congress St., Pasadena 2	NPCorp	293	11,432	Req	57	12	130	187.50	9 Rotating General	04411
Sacramento County Hospital +$^{1-5}$ 2315 Stockton Blvd., Sacramento 17	County	750	12,344	Req	49	12	No	120FM	22 Rotating General	04611
San Bernardino County Charity Hospital +-x12 780 E. Gilbert St., San Bernardino	County	412	6,768	Req	63	12	No	130PM	14 Rotating General	04711
Mercy Hospital +$^{1-3}$ Hillcrest Dr., San Diego 3	ChurchRel	335	17,659	Req	45	12	No	150FM	12 Rotating General	04811
San Diego County General Hospital +$^{1-4-5}$ N. Front St., San Diego 3	County	789	8,214	Req	57	12	131	125FM	15 Rotating General	04911
Children's Hospital +$^{1-3}$-x16 3700 California St., San Francisco 18	NPCorp	226	7,125	Req	58	12	No	100FM	6 Rotating General	05011
Franklin Hospital +$^{1-3}$ 14th and Noe Sts., San Francisco 14	NPCorp	250	8,117	None	47	12	No	65FM	16 Rotating General	05111
French Hospital +$^{1-3}$ 4131 Geary Blvd., San Francisco 18	NPCorp	225	5,978	Req	45	12	No	75FM	10 Rotating General	05211
Mary's Help Hospital +$^{1-3}$ 145 Guerrero St., San Francisco 3	ChurchRel	182	7,530	Req	37	12	No	100FM	6 Rotating General	05311
Mount Zion Hospital +$^{1-3}$ 1600 Divisadero St., San Francisco 15	NPCorp	294	10,879	Req	59	12	No	100FM	14 Rotating General	05411
St. Joseph's Hospital +$^{1-3}$ Buena Vista Ave., San Francisco 17	ChurchOpr	200	7,439	Req	32	12	No	75FM	6 Rotating General	05511
St. Luke's Hospital +$^{1-3}$ 1580 Valencia St., San Francisco 10	ChurchRel	225	8,762	Req	38	12	No	100FM	10 Rotating General	05611
St. Mary's Hospital +$^{1-3}$ 2200 Hayes St., San Francisco 17	ChurchRel	327	11,822	Req	62	12	No	100-150FM	15 Rotating General	05711
San Francisco Hospital +$^{1-4-5}$-X15-16 1001 Potrero Ave., San Francisco 10	CyCo	1,190	20,770	Req	40	12	132	120		
Stanford University Service Office of the Dean Stanford University School of Medicine 2398 Sacramento St., San Francisco 15									30 Rotating General	05911
University of California Service Dr. Leon Goldman San Francisco Hospital									30 Rotating General	05811
Southern Pacific General Hospital +$^{1-3}$ 1400 Fell St., San Francisco 17	NPCorp	450	7,426	Req	63	12	133	100FM	22 Rotating General	06011
Stanford University Hospitals +$^{1-3}$-X15 Clay and Webster Sts., San Francisco 15 Office of the Dean Stanford University School of Medicine 2398 Sacramento St., San Francisco 15	NPCorp	352	11,499	Req	57	12	No	25FM	7 Straight Medicine 8 Straight Surgery 1 Straight Pediatrics	06132 06133 06134

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships
CALIFORNIA—Continued									
University of California Hospital $^{+1-3}$-X16...... Parnassus and Third Aves., San Francisco 22 Dr John B. Lagen, Acting Dean School of Medicine, University of California San Francisco 22	State	286	8,913	Req	76	12	134	92	12 Rotating General 9 Straight Medicine 8 Straight Surgery 5 Straight Pediatrics 2 Straight Pathology 4 Mixed (Med.-Ob.) 2 Mixed (Med.-Surg.)
Santa Clara County Hospital $^{+1}$................ Los Gatos Rd., San Jose 28	County	455	5,718	Req	69	12	No	135FM	16 Rotating General
Santa Barbara Cottage Hospital $^{+1-3}$.......... 320 W. Pueblo St., Santa Barbara	NPCorp	220	7,015	Req	48	12	135	100FM	10 Rotating General
St John's Hospital $^{+}$-x13........................ 1328 22nd St., Santa Monica	ChurchRel	222	11,898	Req	64	12	136	125PM	6 Rotating General
Santa Monica Hospital $^{1-3}$...................... 1250 16th St., Santa Monica	ChurchRel	236	11,707	....	51	12	137	125FM	12 Rotating General
Harbor General Hospital $^{+1-3-4}$-X13........... 1124 W. Carson St., Torrance	County	800	10,280	Req	51	12	No	75FM	34 Rotating General
COLORADO—Hospitals, 11; Internships, 127									
Glockner-Penrose Hospital $^{+1-3}$ .... 2200 N. Tejon St., Colorado Springs	ChurchRel	218	5,436	Req	69	12	No	150PM	2 Rotating General
General Rose Memorial Hospital $^{+1-3}$-x17........ 1050 Clermont St., Denver 20	NPCorp	250	11,903	Req	46	12	No	75FM	9 Rotating General
Mercy Hospital $^{+1-3}$ .... 1619 Milwaukee St., Denver 6	ChurchRel	250	11,329	Req	55	12	No	90FM	9 Rotating General
Porter Sanitarium and Hospital $^{1-3}$............ 2525 S. Downing St., Denver 10	ChurchOpr	210	7,910	Req	46	12	138	162PM	8 Rotating General
Presbyterian Hospital $^{+1-3}$-x17 .... 19th Ave. and Gilpin St., Denver 18	ChurchRel	198	8,756	Req	62	12	139	75FM	10 Rotating General
St. Anthony Hospital $^{+1-3}$......................... W. 16th and Quitman Sts., Denver 4	ChurchOpr	215	9,991	Req	50	12	No	150FM	9 Rotating General
St. Joseph's Hospital $^{+1}$.......................... 1818 Humboldt St., Denver 18	ChurchRel	355	13,315	Req	65	12	No	75FM	14 Rotating General
St. Luke's Hospital $^{+1-3}$.......................... 601 E. 19th Ave., Denver 3	ChurchRel	415	14,518	Req	53	12	139	75FM	14 Rotating General
University of Colorado Medical Center Colorado General Hospital $^{+1}$-X17............. 4200 E. 9th Ave , Denver 20	State	284	6,119	None	79	12	No	50FM	16 Rotating General
Denver General Hospital $^{+1-3}$-X17............. W. 6th Ave. and Cherokee St., Denver 4	CyCo	428	7.235	Req	56	12	140	50FM	16 Rotating General 16 Community Rotating
Weld County General Hospital $^{1-3}$.............. 1801 16th St., Greeley	County	220	6,168	Req	49	12	No	100FM	4 Rotating General
CONNECTICUT—Hospitals, 21; Internships, 189									
Bridgeport Hospital $^{+1-3}$ .... 267 Grant St., Bridgeport 8	NPCorp	389	13,042	None	36	12	No	190FM	8 Rotating General 2 Straight Medicine 2 Straight Surgery
St. Vincent's Hospital $^{+1-3}$...................... 2820 Main St., Bridgeport 6	ChurchRel	368	15,106	Req	39	12	No	250PM	12 Rotating General
Bristol Hospital $^{1-3}$ .... Newell Rd., Bristol	NPCorp	160	6,038	Req	26	12	No	150FM	2 Rotating General
Danbury Hospital $^{+1-3}$ .... 95 Locust Ave., Danbury	NPCorp	167	6,230	Req	54	12	No	200FM	6 Rotating General
Greenwich Hospital $^{+1-3}$ .... Perryridge Rd., Greenwich	NPCorp	203	6,639	Req	69	12	No	100FM	8 Rotating General
Hartford Hospital $^{+1-3-4}$ .... 80 Seymour St., Hartford 15	NPCorp	704	27,845	Req	61	24	No	50FM	18 Rotating General
Hartford Municipal Hospital and Health Center $^{+1-3}$ .... 2 Holcomb St., Hartford 5	City	272	4,900	Req	65	12	No	120FM	7 Rotating General
Mount Sinai Hospital ^{3}........................... 500 Blue Hills Ave., Hartford 12	NPCorp	115	5,408	Req	54	12	No	200FM	4 Rotating General
St. Francis Hospital $^{+1-3-4}$...................... 114 Woodland St., Hartford 5	ChurchRel	578	20,360	Req	42	12	No	75FM	15 Rotating General
Manchester Memorial Hospital $^{1-3}$.............. 71 Haynes St., Manchester	NPCorp	160	7,272	Req	48	12	141	275PM	4 Rotating General
Meriden Hospital $^{+1-3}$ .... 181 Cook Ave., Meriden	NPCorp	215	8,760	Req	37	12	No	150FM	2 Rotating General
Middlesex Memorial Hospital $^{+1-3}$.............. 28 Crescent St., Middletown	NPCorp	174	6,524	Req	43	12	No	150FM	4 Rotating General
New Britain General Hospital $^{+1-3}$.............. 92 Grand St., New Britain	NPCorp	288	9,890	Req	67	12	No	175FM	7 Rotating General
Grace-New Haven Community Hosp.$^{+1-3-4}$-X18.. 789 Howard Ave., New Haven 4	NPCorp	658	19,162	Req	65	12	142	25FM	14 Straight Medicine 13 Straight Surgery 7 Straight Pediatrics 6 Straight Pathology
Hospital of St. Raphael $^{+3}$...................... 1450 Chapel St., New Haven 11	ChurchOpr	370	12,921	Req	35	12	No	100-150FM	12 Rotating General
Lawrence and Memorial Associated Hosps.$^{+1-3}$ 365 Montauk Ave., New London	NPCorp	224	9,340	Req	48	12	No	200FM	3 Rotating General
Norwalk Hospital $^{+1-3}$ .... 24 Stevens St., Norwalk	NPCorp	310	10,117	Req	48	12	No	125FM	6 Rotating General
William W. Backus Hospital $^{1-3}$................ 326 Washington St., Norwich	NPCorp	146	5,840	Req	32	12	No	150FM	8 Rotating General
Stamford Hospital $^{+1-3}$ .... 190 W. Broad St., Stamford	NPCorp	297	8,746	Req	62	12	No	100FM	10 Rotating General
St. Mary's Hospital $^{+1-3-4}$....................... 56 Franklin St., Waterbury 6	ChurchOpr	336	14,304	Req	48	12	No	200FM	7 Rotating General
Waterbury Hospital $^{+1-4}$ .... 64 Robbins St., Waterbury 8	NPCorp	336	11,373	Req	60	12	No	200FM	7 Rotating General
DELAWARE—Hospitals, 3; Internships, 32									
Delaware Hospital $^{+1-3-4}$ .... 501 W. 14th St., Wilmington 1	NPCorp	377	12,897	Req	71	12	No	150FM	14 Rotating General
Memorial Hospital $^{+1-3}$-X65 .... 1501 Van Buren St., Wilmington 6	NPCorp	228	6,771	Req	52	12	No	150FM	12 Rotating General
Wilmington General Hospital $^{+1-3}$.............. Chestnut at Broom St., Wilmington 5	NPCorp	187	6,906	Req	45	12	No	150FM	6 Rotating General

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Abbreviations and other references will be found on pages 283 and 284.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
DISTRICT OF COLUMBIA—Hospitals, 9; Internships, 147										
Central Dispensary and Emergency Hosp.$^{+1-3-4}$ 1711 New York Ave., N.W., Washington 6	NPCorp	300	8,039	Req	53	12	148	200FM	13 Rotating General	79611
Dist. of Columbia General Hosp.$^{+1-3-4}$-X19-20-x21 19th and E Sts., S.E., Washington 3	City	1,251	20,569	Req	50	12	No	50FM	50 Rotating General	79911
Doctors Hospital $^{+1-3}$ 1815 Eye St., N	Corp	237	10,162	Req	62	12	149	150PM	6 Rotating General	79711
Garfield Memorial 10th St. & Florida Ave., N.W., Washington 1	NPCorp	306	10,025	Req	49	12	150	200FM	12 Rotating General	80011
Georgetown University Hospital $^{+1-3}$-X19 3800 Reservoir Rd., N.W., Washington 7	ChurchOpr	365	12,401	Req	63	12	151	50FM	6 Straight Medicine	80132
George Washington University Hospital $^{+1-3}$-X20 901 23rd St., N.W., Washington 7	NPCorp	410	14,691	Req	65	12	152	125PM	13 Rotating (Med. Major) 11 Rotating (Surg. Maj.) 1 Rotating (Path. Maj.)	80212 80213 80286
Providence Hospital $^{+1-3-4}$ 2nd and D Sts., S.E., Washington 3	ChurchRel	270	10,438	Req	55	12	No	175FM	18 Rotating General	80311
Sibley Memorial Hospital $^{+1-3}$ 1150 N. Capitol St., Washington 2	ChurchOpr	253	11,157	Req	43	12	No	100FM	9 Rotating General	80511
Washington Sanitarium and Hospital $^{1-3}$ 7600 Carroll Ave., Washington 12	ChurchRel	240	7,600	Req	40	12	148	135PM	8 Rotating General	25411
FLORIDA—Hospitals, 11; Internships, 142										
Duval Medical Center $^{+1-3}$ 2000 Jefferson St., Jacksonville 8	County	335	8,141	Req	44	12	143	140FM	16 Rotating General	10111
St. Luke's Hospital $^{+1}$ 9th St. and Boulevard, Jacksonville 8	NPCorp	210	10,231	None	33	12	No	200FM	6 Rotating General	10211
*St. Vincent's Hospital $^{+1-3}$ Barrs and St. John's Ave., Jacksonville 4	ChurchRel	365	13,707	Req	51	12	No	125FM	18 Rotating General	.....
Jackson Memorial Hospital $^{+1}$-X87 1000 N.W. 17th St., Miami 36	County	844	23,657	Req	46	12	144	50FM	42 Rotating General	10411
Mount Sinai Hospital $^{+1-3}$ 4300 Alton Rd., Miami Beach 40	NPCorp	258	7,943	Req	35	12	No	150FM	12 Rotating General	10511
St. Francis Hospital $^{+1-3}$ 250 W. 63rd St., Miami Beach 41	ChurchRel	200	6,648	Req	39	12	No	100FM	5 Rotating General	10611
Orange Memorial Hospital $^{+1-3}$ 1416 S. Kuhl Ave., Orlando	NPCorp	300	12,298	Req	44	12	No	125FM	12 Rotating General	10711
Sacred Heart Hospital $^{+1-3}$ 1010 N. 12th Ave., Pensacola	ChurchRel	130	5,814	Req	29	12	No	200FM	3 Rotating General	10811
Mound Park Hospital $^{+1}$ 6th Ave. and 6th St., S., St. Petersburg 5	City	251	8,360	None	40	12	145	260PM	12 Rotating General	91111
Tampa Municipal Hospital $^{+1-3}$ Davis Islands, Tampa 6	City	300	11,996	Req	50	12	No	100FM	12 Rotating General	10911
St. Mary's Hospital $^{1-3}$ 900 49th St., West Palm Beach	ChurchOpr	200	5,866	Req	29	12	No	100FM	4 Rotating General	91411
GEORGIA—Hospitals, 11; Internships, 174										
Athens General Hospital 797 Cobb St., Athens	County	104	4,792	None	33	12	146	275PM	6 Rotating General	85611
St. Mary's Hospital ^{1} 360 N. Milledge Ave., Athens	ChurchOpr	100	4,348	Req	50	12	No	150FM	3 Rotating General	11011
Crawford W. Long Memorial Hospital $^{+1-3}$-x22 35 Linden Ave., N.E., Atlanta 3	ChurchRel	481	16,775	Req	43	12	147	100FM	18 Rotating General	11111
Georgia Baptist Hospital $^{+1-3}$ 300 Boulevard, N.E., Atlanta 5	ChurchOpr	475	18,571	Req	54	12	No	265	20 Rotating General	11211
Grady Memorial Hospital $^{+1-3-4}$-X22 36 Butler St., S.E., Atlanta 3	County	670	17,507	Req	51	12	No	10PM	8 Rotating General ^{6} 16 Straight Medicine 16 Straight Surgery 4 Straight Pediatrics	11311 11332 11333 11334
Piedmont Hospital $^{+1}$-x22 551 Capitol Ave., S.E., Atlanta	NPCorp	132	6,532	None	50	12	147	150-190FM	8 Rotating General	11411
St. Joseph's Infirmary $^{+1-3}$ 272 Courtland St., N.E., Atlanta 3	ChurchRel	265	9,061	Req	50	12	No	150FM	12 Rotating General	11511
University Hospital $^{+1-3}$-X23 University Pl., Augusta	City	425	14,780	Req	38	12	No	150PM	24 Rotating General	11611
Columbus City Hospital $^{+1-3}$ 19th St. and 7th Ave., Columbus	City	226	10,448	Req	36	12	No	200FM	10 Rotating General	11811
Emory University Hospital $^{+1}$-X22 Emory University	NPCorp	304	11,123	Req	60	12	No	165	6 Straight Medicine 6 Straight Surgery 3 Straight Pathology	11932 11933 11936
Macon Hospital $^{+1}$ 840 Pine St., Macon	CyCo	284	13,886	Req	40	12	No	200FM	14 Rotating General	12011
ILLINOIS—Hospitals, 61; Internships, 822										
MacNeal Memorial Hospital $^{+1-3}$ 3249 S. Oak Park Ave., Berwyn	NPCorp	165	9,650	Req	64	12	No	100-150FM	13 Rotating General	12111
St. Francis Hospital $^{1-3}$ 12946 S. Gregory St., Blue Island	ChurchRel	160	6,076	Req	34	12	No	175FM	6 Rotating General	93211
Alexian Brothers Hospital $^{+3}$ 1200 W. Belden Ave., Chicago 14	ChurchRel	243	6,027	None	46	12	153	75-100FM	8 Rotating General	12211
*American Hospital $^{+1-3}$ 850 W. Irving Park Rd., Chicago 13	NPCorp	152	5,277	Req	53	12	No	25FM	5 Rotating General	.....
Augustana Hospital $^{+1-3}$ 411 W. Dickens Ave., Chicago 14	ChurchRel	320	8,703	Req	51	12	No	100FM	10 Rotating General	12411
Chicago Wesley Memorial Hospital $^{+1-3}$-X25 250 E. Superior St., Chicago 11	ChurchRel	571	16,307	None	69	12	154	25FM	32 Rotating General	16211
Columbus Hospital $^{+3}$-x25 2520 N. Lakeview Ave., Chicago 14	ChurchRel	350	10,494	Req	37	12	155	75FM	20 Rotating General	12611
Cook County Hospital $^{+1-4}$-X24-25-26-28 1825 W. Harrison St., Chicago 12	County	3,200	70,755	...	33	12	No	25FM	124 Rotating General	12711
Edgewater Hospital $^{1-3}$ 5700 N. Ashland Ave., Chicago 26	NPCorp	156	7,273	Req	43	12	No	100FM	15 Rotating General	12811
Englewood Hospital $^{+1-3}$ 6601 S. Green St., Chicago 21	NPCorp	154	6,444	Req	47	12	No	150FM	6 Rotating General	12911
Evangelical Hospital $^{1-3}$ 5421 S. Mor	ChurchRel	195	7,911	None	53	12	No	150FM	9 Rotating General	13011
Garfield Park 3813 W. Washington Blvd., Chicago 24	NPCorp	150	5,766	None	29	12	No	175FM	7 Rotating General	13111
Grant Hospital $^{+1-3}$-X28 551 Grant Pl., Chicago 14	NPCorp	235	9,021	Req	55	12	156	200FM	9 Rotating General	13211

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
ILLINOIS—Continued										
Henrotin Hospital +[1-3] 939 N. La Salle St., Chicago 10	NPCorp	100	3,344	Req	68	12	157	125FM	4 Rotating General	1311
Holy Cross Hospital [3] 2700 W. 69th St., Chicago 29	ChurchRel	143	6,199	Req	55	12	158	150FM	6 Rotating General	1341
Hospital of St. Anthony de Padua +[1-3] 2875 W. 19th St., Chicago 23	ChurchRel	215	7,883	Req	25	12	No	200FM	8 Rotating General	1351
Illinois Central Hospital +[1-3]-x28 5800 Stony Island Ave., Chicago 37	NPCorp	300	7,227	Req	61	12	159	160FM	14 Rotating General	1361
Illinois Masonic Hospital +[1-3] 836 Wellington Ave., Chicago 14	NPCorp	375	12,020	Req	49	12	No	100FM	12 Rotating General	1371
Jackson Park Hospital [1-3] 7531 Stony Island Ave., Chicago 49	Corp	146	5,171	None	37	12	No	150FM	8 Rotating General	1381
Loretto Hospital +[1-3]-X26 615 S. Central Ave., Chicago 44	ChurchRel	150	5,401	None	54	12	No	150FM	6 Rotating General	1391
Lutheran Deaconess Home and Hospital +[3] 1138 N. Leavitt St., Chicago 22	ChurchRel	186	6,477	Req	39	12	No	150FM	5 Rotating General	1401
Mercy Hospital +[1-3]-X26 2537 S. Prairie Ave., Chicago 16	ChurchRel	356	9,284	...	49	12	No	100FM	15 Rotating General	1411
Michael Reese Hospital +[1-3]-X24-25 2839 S Ellis Ave., Chicago 16	NPCorp	726	19,598	Req	63	12	160	50FM	37 Rotating General 2 Straight Medicine 2 Straight Surgery 2 Straight Pediatrics 1 Straight Pathology	1421 1423 1425 1423 1423
Mother Cabrini Memorial Hospital [3] 1200 W. Cabrini St., Chicago 7	ChurchRel	150	5,553	Req	24	12	No	100FM	5 Rotating General	1431
Mount Sinai Hospital +[1-3]-X24 2750 W. 15th Pl., Chicago 8	NPCorp	373	10,678	Req	51	12	No	50FM	14 Rotating General 2 Straight Surgery	1401 1403
Norwegian American Hospital +[1-3] 1044 N. Francisco Ave., Chicago 22	NPCorp	172	6,292	Req	31	12	No	200FM	8 Rotating General	1451
Passavant Memorial Hospital +[1-3]-X25 303 E. Superior St., Chicago 11	NPCorp	263	8,244	None	66	12	156	25FM	12 Rotating General	1461
Presbyterian Hospital +[1-3]-X28 1753 W. Congress St., Chicago 12	ChurchRel	418	12,042	Req	64	12	No	100FM	26 Rotating General	1471
Provident Hospital +[1-3] 426 E. 51st St., Chicago 15	NPCorp	203	7,077	Req	31	12	No	125FM	9 Rotating General 1 Straight Surgery	1481 1483
Ravenswood Hospital +[1-3] 1931 Wilson Ave., Chicago 40	NPCorp	207	7,709	Req	72	12	No	70FM	9 Rotating General 1 Rotating (Med. Major) 1 Rotating (Surg. Maj.) 1 Rotating (Ob.-Gyn. Maj.)	1491 1491 1491 1491
Resurrection Hospital [3] 7435 W. Talcott Ave., Chicago 31	ChurchRel	181	6,216	Req	60	12	No	200FM	9 Rotating General	9371
Roseland Community Hospital [3] 45 W. 111th St., Chicago 28	NPCorp	101	3,873	Req	56	12	No	175FM	4 Rotating General	9241
St. Anne's Hospital +[1-3] 4950 Thomas St., Chicago 51	ChurchOpr	304	12,490	None	27	12	No	150FM	12 Rotating General	1521
St. Bernard's Hospital +[1-3] 6337 S. Harvard Ave., Chicago 21	ChurchRel	185	4,814	None	35	12	No	150FM	8 Rotating General	15311
St. Elizabeth Hospital +[3] 1431 N. Claremont Ave., Chicago 22	ChurchRel	273	10,115	None	37	12	No	200FM	8 Rotating General	1541
St. Joseph Hospital +[1-3]-x26 2100 N. Burling St., Chicago 14	ChurchRel	197	6,365	Req	51	12	No	100FM	8 Rotating General	1551
St. Luke's Hospital +[1-3]-X25-x23 1439 S. Michigan Ave., Chicago 5	NPCorp	553	14,716	Req	68	12	No	25FM	32 Rotating General	15611
St. Mary of Nazareth Hospital +[1] 1120 N. Leavitt St., Chicago 22	ChurchRel	261	9,330	Req	37	12	No	200FM	10 Rotating General	15711
South Chicago Community Hospital [1-3] 2320 E. 93rd St., Chicago 17	NPCorp	250	9,884	Req	27	12	No	150FM	8 Rotating General	15811
South Shore Hospital +[1-3] 8015 S. Luella Ave., Chicago 17	NPCorp	154	6,335	Req	35	12	161	200-250FM	7 Rotating General	92511
Swedish Covenant Hospital +[1-3] 5145 N. California Ave., Chicago 25	ChurchOpr	209	6,285	None	39	12	No	150FM	7 Rotating General 1 Rotating (Med. Major)	15911 15912
University of Chicago Clinics +[1-3-4]-X27 950 E. 59th St., Chicago 37	NPCorp	664	16,107	Req	75	12	No	127PM	36 Rotating General 3 Straight Pediatrics	16011 16024
University of Illinois Research and Educational Hospitals +[1-4]-X28 840 S. Wood St., Chicago 12	State	565	8,118	Req	88	12	162	25FM	30 Rotating General	15011
Walther Memorial Hospital [1-3] 1116 N. Kedzie Ave., Chicago 51	ChurchRel	175	6,873	Req	28	12	No	100FM	6 Rotating General	16111
Women and Children's Hospital +[2-3] 1600 W. Maypole Ave., Chicago 12	NPCorp	115	3,509	Req	64	12	No	75FM	3 Rotating General .	16311
Woodlawn Hospital +[1-3] 6060 Drexel Ave., Chicago 37	NPCorp	150	4,272	Req	61	12	No	100FM	8 Rotating General	16411
Decatur and Macon County Hospital +[1] 2300 N. Edward St., Decatur	NPCorp	248	8,793	Req	32	12	163	225FM	6 Rotating General	85711
St. Mary's Hospital [3] 129 N. 8th St., East St. Louis	ChurchRel	290	11,126	Req	25	12	No	150FM	12 Rotating General	16511
Memorial Hospital of Du Page County [1-3] *189 Avon Rd., Elmhurst*	NPCorp	185	9,520	Req	43	12	No	300FM	4 Rotating General 1 Rotating (Med. Major) 1 Rotating (Surg. Maj.) 1 Rotating (Ob.-Gyn. Maj.) 1 Rotating (Ped. Maj.)	16611 16612 16613 16615 16614
Evanston Hospital +[1]-X25 2650 Ridge Ave., Evanston	NPCorp	325	10,737	Req	78	12	156	25FM	18 Rotating General	16711
St. Francis Hospital +[1-3] 355 Ridge Ave., Evanston	ChurchRel	383	14,150	Req	59	12	No	150FM	16 Rotating General	16811
Little Company of Mary Hospital +[1-3] 95th St. and California Ave., Evergreen Park 42	ChurchRel	371	18,187	Req	25	12	No	150FM	15 Rotating General	16911
Moline Public Hospital [1-3] 622 5th Ave., Moline	City	210	8,465	Req	30	12	No	100FM	4 Rotating General	17111
Oak Park Hospital [1-3] 525 Wisconsin Ave., Oak Park	ChurchRel	244	7,783	Req	20	12	No	150FM	6 Rotating General	17211
West Suburban Hospital +[3]-x28 518 N. Austin Blvd., Oak Park	NPCorp	329	12,668	Req	49	12	No	200FM	12 Rotating General	17311
Methodist Hospital of Central Illinois +[1-3] 221 N. Glen Oak Ave., Peoria 5	ChurchRel	314	12,021	None	50	12	No	125FM	12 Rotating General	17411
St. Francis Hospital +[1] 530 N. Glen Oak Ave., Peoria 4	ChurchRel	600	17,240	Req	44	12	No	200FM	18 Rotating General	17511

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
ILLINOIS—Continued										
Rockford Memorial Hospital $^{+1-3}$ 2400 N. Rockton Ave., Rockford	NPCorp	127	5,768	Req	65	12	No	150FM	6 Rotating General	17711
St. Anthony Hospital $^{+1-3}$ 1401 E. State St., Rockford	ChurchOpr	240	8,892	Req	54	12	No	150FM	4 Rotating General	17811
Swedish-American Hospital $^{+}$ 1316 Charles St., Rockford	NPCorp	200	7,799	Req	49	12	No	150FM	6 Rotating General	17911
Memorial Hospital $^{1-3}$ 1st and Miller Sts., Springfield	NPCorp	270	7,943	None	23	12	No	175FM	4 Rotating General	18011
INDIANA—Hospitals, 17; Internships, 195										
St. Catherine Hospital $^{1-3}$ 4321 Fir St., East Chicago	ChurchRel	311	10,899	Req	48	12	No	175FM	7 Rotating General	18111
Protestant Deaconess Hospital $^{+1}$ 600 Mary St., Evansville 10	ChurchRel	289	16,004	Req	29	12	No	150PM	4 Rotating General	18211
St. Mary's Hospital ^{3} 3700 Washington Ave., Evansville 15	ChurchRel	180	7,430	Req	42	12	No	250FM	4 Rotating General	94111
Lutheran Hospital 3024 Fairfield Ave., Fort Wayne 6	ChurchRel	193	7,664	Req	36	12	No	200-250FM	6 Rotating General	18311
Parkview Memorial Hospital $^{1-3}$ 2200 Randalia Dr., Fort Wayne 3	NPCorp	240	7,407	Req	28	12	No	200-250FM	8 Rotating General	94011
St. Joseph's Hospital $^{+1}$ 730 W. Berry St., Fort Wayne 9	ChurchRel	261	10,129	Req	33	12	No	200-250FM	6 Rotating General	90411
Methodist Hospital $^{+1}$ 1600 W. 6th Ave., Gary	ChurchRel	212	15,235	Req	38	12	No	150PM	10 Rotating General	86011
St. Mary's Mercy Hospital 540 Tyler St., Gary	ChurchRel	256	10,218	None	21	12	No	200FM	8 Rotating General	18411
St. Margaret Hospital $^{+}$ 25 Douglas St., Hammond	ChurchRel	350	14,579	None	36	12	No	300FM	10 Rotating General	18511
Indianapolis General Hospital $^{+1-3-4-X29}$ 960 Locke St., Indianapolis 7	CyCo	689	11,425	Req	46	12	No	110FM	42 Rotating General	18611
Indiana University Medical Center $^{+1-4-X29}$ 1100 W. Michigan St., Indianapolis 7	State	496	11,582	None	67	12	164	115PM	26 Rotating General 4 Straight Surgery	18711 18733
Methodist Hospital $^{+1}$ 1604 N. Capitol Ave., Indianapolis 7	ChurchRel	624	25,058	Req	37	12	No	210PM	18 Rotating General	18811
St. Vincent's Hospital $^{+1-3}$ 120 W. Fall Creek Pkwy., Indianapolis 7	ChurchOpr	300	12,217	Req	46	12	No	210PM	11 Rotating General	18911
St. Elizabeth Hospital $^{+3}$ 1021 N. 14th St., LaFayette	ChurchOpr	280	9,453	Req	30	12	No	150-200FM	10 Rotating General	19011
Ball Memorial Hospital $^{+1}$ 2401 University Ave., Muncie	NPCorp	248	10,698	None	45	12	No	150FM	8 Rotating General	19211
Memorial Hospital $^{+1}$ 604 N. Main St., South Bend 1	NPCorp	214	9,864	Req	48	12	165	150FM	7 Rotating General	19311
*St. Joseph's Hospital $^{1-3}$ 401 N. Notre Dame Ave., South Bend 22	ChurchRel	171	7,523	None	32	12	166	125FM	6 Rotating General	.....
IOWA—Hospitals, 11; Internships, 90										
Mercy Hospital $^{1-3}$ 835 6th Ave., S.E., Cedar Rapids	ChurchOpr	206	7,634	Req	36	12	No	200FM	4 Rotating General	19611
St. Luke's Methodist Hospital $^{+1-3}$ 1026 A Ave., N.E., Cedar Rapids	ChurchOpr	295	11,382	Req	53	12	No	125FM	6 Rotating General	19711
Mercy Hospital $^{1-X45}$ 420 E. Washington Ave., Council Bluffs	ChurchRel	188	6,191	Req	30	12	No	150FM	4 Rotating General	19811
Mercy Hospital $^{1-3}$ 1326 W. Lombard St., Davenport	ChurchOpr	235	7,872	None	28	12	No	150PM	6 Rotating General	85911
Broadlawns Polk County Hospital $^{+1-3}$ 18th and Hickman Rd., Des Moines 14	County	244	4,756	Req	43	12	No	130FM	12 Rotating General	19911
Iowa Lutheran Hospital $^{1-3}$ 716 Parnell Ave., Des Moines 16	ChurchRel	200	7,535	Req	30	12	No	150FM	8 Rotating General	20011
Iowa Methodist Hospital $^{+1-3}$ 1200 Pleasant St., Des Moines 14	ChurchRel	394	15,050	Req	53	12	No	150FM	10 Rotating General	20111
Mercy Hospital $^{+1-3}$ 4th and Ascension Sts., Des Moines 14	ChurchRel	200	10,129	Req	66	12	167	175FM	8 Rotating General	20211
Mercy Hospital $^{+1}$ 214 N. Van Buren St., Iowa City	ChurchRel	190	6,012	....	24	12	No	150FM	4 Rotating General	86111
University Hospitals $^{+1-3-4-X30}$ Newton Rd., Iowa City	State	896	18,906	Req	70	12	No	103FM	20 Rotating General	20311
St. Joseph Mercy Hospital $^{1-3}$ 2101 Court St., Sioux City 5	ChurchOpr	450	10,295	Req	85	12	No	175FM	8 Rotating General	20411
KANSAS—Hospitals, 7; Internships, 94										
Bethany Hospital $^{1-3}$ 12th St. and Reynolds Ave., Kansas City 7	ChurchRel	159	6,872	None	40	12	No	150FM	8 Rotating General	20511
Providence Hospital ^{1} 18th St. and Barnett Ave., Kansas City 2	ChurchRel	150	7,302	Req	40	12	168	225PM	6 Rotating General	20611
St. Margaret's Hospital $^{+3}$ 8th St. and Vermont Ave., Kansas City 8	ChurchRel	194	6,119	Req	48	12	No	200FM	6 Rotating General	20711
University of Kansas Medical Center $^{+1-3-4-X31}$ 39th St. and Rainbow Blvd., Kansas City 3	State	550	11,304	....	72	12	No	40PM	22 Rotating General 4 Mixed (Med.-Surg.-Ped.)	20811 20823
St. Francis Hospital $^{+1-3}$ 928 N. Emporia Ave., Wichita 5	ChurchRel	515	20,116	Req	45	12	169	225FM	20 Rotating General	20911
Wesley Hospital $^{+1-3}$ 550 N. Hillside Ave., Wichita 6	ChurchRel	385	19,025	Req	32	12	169	100FM	16 Rotating General	21011
Wichita-St. Joseph Hospital $^{1-3}$ 3400 Grand Ave., Wichita 17	ChurchRel	325	11,076	Req	36	12	169	150FM	12 Rotating General	21111
KENTUCKY—Hospitals, 8; Internships, 102										
St. Elizabeth Hospital ^{1,3} 21st St. and Eastern Ave., Covington	ChurchRel	364	13,033	Req	32	12	No	200FM	12 Rotating General	21211
Good Samaritan Hospital $^{+1}$ 310 S. Limestone St., Lexington	ChurchRel	375	12,493	Req	46	12	No	150FM	12 Rotating General	21411
St. Joseph Hospital $^{+1-3}$ 544 W. 2nd St., Lexington	ChurchOpr	312	10,846	...	46	12	No	200FM	8 Rotating General	21511
Kentucky Baptist Hospital ^{1} 810 Barret Ave., Louisville 4	ChurchRel	345	13,917	None	31	12	170	200PM	10 Rotating General	21611
Louisville General Hospital $^{+1-3-4-X32}$ 323 E. Chestnut St., Louisville 2	CyCo	360	10,272	Req	38	12	171	70FM	22 Rotating General 4 Straight Medicine 5 Straight Pediatrics	21711 21732 21734

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KENTUCKY—Continued										
Norton Memorial Infirmary +$^{1-3}$ 231 W. Oak St., Louisville 3	NPCorp	280	10,985	Req	39	12	172	200PM	8 Rotating General	213
St Anthony Hospital +$^{1-3}$ 1313 St. Anthony Pl., Louisville 4	ChurchRel	210	9,148	Req	31	12	173	200FM	5 Rotating General	2191
St. Joseph Infirmary +$^{1-3}$ 735 Eastern Pkwy., Louisville 17	ChurchRel	436	16,927	Req	35	12	No	175FM	16 Rotating General	221
LOUISIANA—Hospitals, 9; Internships, 236										
Baton Rouge General Hospital +^{1} 3600 Florida St., Baton Rouge 9	ChurchOpr	250	13,659	Req	25	12	174	100FM	5 Rotating General	2231
Charity Hospital of Louisiana +$^{1-3-4}$-X33-34 1532 Tulane Ave., New Orleans 12	State	3,060	51,805	Req	62	12	No	75FM	130 Rotating General	2241
Hotel Dieu, Sisters' Hospital +$^{1-3}$ 2004 Tulane Ave., New Orleans 16	ChurchRel	295	13,589	Req	38	12	No	150FM	12 Rotating General	2251
Mercy Hospital $^{1-3}$ 301 N. Jefferson Davis Pkwy., New Orleans 19	ChurchRel	191	8,955	Req	27	12	No	150FM	8 Rotating General	2261
Southern Baptist Hospital +^{1} 2700 Napoleon Ave., New Orleans 15	ChurchRel	438	19,329	Req	45	12	No	165	20 Rotating General	2271
Touro Infirmary +$^{1-3}$-x34 3516 Prytania St., New Orleans 15	NPCorp	456	18,931	Req	56	12	No	75FM	20 Rotating General	2291
Confederate Memorial Medical Center +^{1} 1541 Kings Highway, Shreveport	State	900	19,157	Req	39	12	No	100FM	36 Rotating General	2321
North Louisiana Sanitarium ^{1} 1130 Louisiana Ave., Shreveport	Corp	130	5,112	Req	58	12	175	225FM	3 Rotating General	2301
T. E. Schumpert Memorial Sanitarium ^{1} 941 Margaret Pl., Shreveport	ChurchRel	107	6,468	None	34	12	No	250	2 *Rotating (Surg. Major)*	2311
MAINE—Hospitals, 4; Internships, 27										
Eastern Maine General Hospital +^{1} 489 State St., Bangor	NPCorp	294	9,587	Req	44	12	No	75FM	8 Rotating General	2331
Central Maine General Hospital +$^{1-3}$ 300 Main St., Lewiston	NPCorp	221	8,445	Req	58	12	No	125FM	4 Rotating General	2341
St. Mary's General Hospital $^{1-3}$ 318 Sabattus St., Lewiston	ChurchRel	150	4,269	Req	28	12	No	125FM	3 Rotating General	2351
Maine General Hospital +$^{1-3}$ 22 Arsenal St., Portland 4	NPCorp	341	8,928	Req	38	12	No	75FM	12 Rotating General	2361
MARYLAND—Hospitals, 19; Internships, 277										
Baltimore City Hospitals +$^{1-3-4}$-X35-36 4940 Eastern Ave., Baltimore 24	City	1,255	8,268	Req	41	12	No	50FM	12 Rotating General	2371
									10 Straight Medicine	2373
									6 Straight Pediatrics	2373
									2 Straight Pathology	2373
Bon Secours Hospital +^{3} 2025 W. Fayette St., Baltimore 23	ChurchRel	170	6,496	Req	42	12	No	225FM	5 Rotating General	2381
Church Home and Hospital +$^{1-3}$ Broadway and Fairmount Ave., Baltimore 31	ChurchRel	184	5,685	Req	32	12	176	175FM	8 Rotating General	2391
									1 Straight Medicine	239
Franklin Square Hospital +$^{1-3}$ 110 N. Calhoun St., Baltimore 23	NPCorp	161	4,858	Req	29	12	176	150-200FM	8 Rotating General	2401
Hospital for Women +$^{1-3}$ Lafayette Ave. and John St., Baltimore 17	NPCorp	151	6,521	Req	44	12	No	200FM	3 Mixed (Med.-Ob.-Gyn.)	241
Johns Hopkins Hospital +$^{1-3-4}$-X35 601 N. Broadway, Baltimore 5	NPCorp	995	22,261	Req	69	12	No	20FM	14 Straight Medicine	242
									10 Straight Medicine Private Wards	242
									19 Straight Surgery	2423
									15 Straight Pediatrics	2423
									12 Straight Ob.-Gyn.	2423
									1 Straight Pathology	2423
Lutheran Hospital +$^{1-3-4}$ 730 Ashburton St., Baltimore 16	ChurchRel	191	7,527	Req	43	12	No	200FM	7 Rotating General	2431
Maryland General Hospital +$^{1-3}$ Linden Ave. and Madison St., Baltimore 1	ChurchRel	229	6,974	Req	34	12	177	200FM	8 Rotating General	2441
Mercy Hospital +$^{1-3-4}$-X36 Calvert and Saratoga Sts., Baltimore 2	ChurchRel	301	10,584	Req	47	12	No	225PM	16 Rotating General	2451
Provident Hospital and Free Dispensary +$^{1-3-4}$ 1514 Division St., Baltimore 17	NPCorp	130	4,045	Req	28	12	No	100FM	8 Rotating General	2461
St. Agnes Hospital +$^{1-3}$ 1000 Caton Ave., Baltimore 29	ChurchOpr	217	7,843	Req	46	12	178	100FM	9 Rotating General	2471
St. Joseph's Hospital +$^{3-4}$ 1400 N. Caroline St., Baltimore 13	ChurchRel	250	7,702	Req	30	12	No	200FM	8 Rotating General	2481
Sinai Hospital +$^{1-3-4}$ 1714 E. Monument St., Baltimore 5	NPCorp	312	12,167	Req	47	12	No	100FM	16 Rotating General	2491
									2 Straight Medicine	2493
									2 Straight Surgery	2493
									1 Straight Pediatrics	2493
South Baltimore General Hospital +$^{1-3}$ 1213 Light St., Baltimore 30	NPCorp	184	6,221	....	31	12	No	140FM	8 Rotating General	2501
Union Memorial Hospital +$^{1-3}$ 33rd and Calvert Sts., Baltimore 18	NPCorp	347	10,083	Req	40	12	No	100FM	16 Rotating General	2511
University Hospital +$^{1-3-4}$-X36 Redwood and Greene Sts., Baltimore 1	State	480	13,126	Req	52	12	No	25FM	32 Rotating General	2521
									2 Straight Medicine	2523
									2 Straight Pediatrics	2523
Suburban Hospital +$^{1-3}$ 8600 Old Georgetown Rd., Bethesda 14	NPCorp	126	6,079	Req	48	12	179	100-200PM	2 Rotating General	.....
Prince George's General Hospital +$^{1-3}$-x19 Cheverly	County	230	9,599	Req	28	12	No	150FM	8 Rotating General	93511
Washington County Hospital +$^{1-3}$ King and Antietam Sts., Hagerstown	NPCorp	262	9,315	None	29	12	No	200FM	4 Rotating General	94511
MASSACHUSETTS—Hospitals, 34; Internships, 369										
Beverly Hospital +$^{1-3}$ Heather and Herrick Sts., Beverly	NPCorp	186	5,855	Req	67	12	No	50FM	6 Rotating General	25511
Beth Israel Hospital +$^{1-3-4}$-X38-39 330 Brookline Ave., Boston 15	NPCorp	312	10,941	Req	50	12	180	25FM	8 Straight Medicine	25632
									5 Straight Surgery	25633
Boston City Hospital +$^{1-3-4}$-X37-38-39 818 Harrison Ave., Boston 18 Chrm. Com. Internship Exams	City	2,306	33,842	None	45	12	No	92FM		
	I and III	Medical Tufts							16 Straight Medicine	25793
	II and IV	Medical Harvard							16 Straight Medicine	25794
	V and VI	Medical Boston Univ.							16 Straight Medicine	25795
	I	Surgical Tufts							8 Straight Surgery	25796
	III	Surgical Boston Univ.							8 Straight Surgery	25798
	V	Surgical Harvard							8 Straight Surgery	25701
		Straight Specialties, Boston Univ.							4 Straight Pediatrics	25704
		Pathology							4 Straight Pathology	25705

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Abbreviations and other references will be found on pages 283 and 284.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
MASSACHUSETTS—Continued										
Carney Hospital +1-3 2100 Dorchester Ave., Boston 24	ChurchRel	280	6,816	Req	44	12	181	100FM	12 Rotating General	25811
Children's Medical Center +1-3-X38 300 Longwood Ave., Boston 15	NPCorp	455	9,720	Req	82	12	182	FM	5 Straight Pediatrics 2 Straight Pathology	25934 25936
Massachusetts General Hospital +1-4-X38 Fruit St., Boston 14	NPCorp	910	21,313	Req	63	12	183	25FM	12 Straight Medicine 8 Straight Surgery 7 Straight Pediatrics 1 Straight Pathology	26132 26133 26134 26136
Massachusetts Memorial Hospitals +1-3-4-X37 750 Harrison Ave., Boston 18	NPCorp	360	7,260	Req	52	12	No	25FM	10 Straight Medicine 6 Straight Surgery 1 Straight Pathology	26232 26233 26236
New England Center Hospital +1-3-X39 Harrison Ave. and Bennet St., Boston 11	NPCorp	195	6,190	Req	71	12	184	41FM	10 Straight Medicine 8 Straight Surgery	26332 26333
New England Hospital +1-3 Dimock and Columbus Sts., Boston 19	NPCorp	150	3,913	Req	44	12	185	35FM	3 Rotating General	26411
Peter Bent Brigham Hospital +1-3-4-X38 721 Huntington Ave., Boston 15	NPCorp	280	5,840	Req	71	12	186	25FM	12 Straight Medicine 6 Straight Surgery	26532 26533
St. Elizabeth's Hospital +1-3-x39 736 Cambridge St., Boston (Brighton) 35	ChurchOpr	400	12,907	Req	31	12	No	95FM	10 Rotating General	26611
Brockton Hospital 1-3 680 Centre St., Brockton 11	NPCorp	183	6,760	Req	43	12	No	250FM	4 Rotating General	26711
Cambridge City Hospital +1-3-x39 1493 Cambridge St., Cambridge 39	City	270	6,120	Req	46	12	No	100FM	12 Rotating General	26811
Mount Auburn Hospital +1-x38 330 Mount Auburn St., Cambridge 38	NPCorp	233	7,014	Req	47	12	187	100FM	6 Rotating General	26911
Truesdale Hospital +1-3 1820 Highland Ave., Fall River	NPCorp	152	4,530	Req	58	12	188	100FM	8 Rotating General	27011
Union Hospital 1-3 538 Prospect St., Fall River	NPCorp	165	5,331	Req	30	12	No	100FM	4 Rotating General	86411
Holyoke Hospital +1-3-4 575 Beech St., Holyoke	NPCorp	181	5,120	Req	45	12	No	100PM	1 Rotating General 1 Rotating (Med. Major) 1 Rotating (Surg. Maj.) 1 Straight Pathology	27311 27312 27313 27336
Lawrence General Hospital +1-3 1 Garden St., Lawrence	NPCorp	187	6,722	Req	56	12	No	100FM	4 Rotating General	27411
Lowell General Hospital +1-3 295 Varnum Ave., Lowell	NPCorp	210	6,330	Req	44	12	No	100-150FM	2 Rotating General	27511
St. John's Hospital 3 14 Bartlett St., Lowell	ChurchRel	187	5,887	Req	30	12	No	100FM	4 Rotating General	27611
St. Joseph's Hospital 3 830 Merrimack St., Lowell	ChurchRel	189	6,362	Req	33	12	No	125FM	2 Rotating General	27711
Lynn Hospital +1-3 212 Boston St., Lynn	NPCorp	218	9,756	Req	33	12	No	100FM	6 Rotating General	27811
St. Luke's Hospital +1-3 101 Page St., New Bedford	NPCorp	369	10,029	Req	25	12	No	100FM	6 Rotating General	27911
Newton-Wellesley Hospital +1-3 2014 Washington St., Newton Lower Falls 62	NPCorp	235	7,511	Req	43	12	No	120FM	6 Rotating General	28011
St. Luke's Hospital 1-3 379 East St., Pittsfield	ChurchRel	150	4,658	Req	34	12	No	150FM	2 Rotating General	28211
Quincy City Hospital +1-3 114 Whitwell St., Quincy 69	City	251	11,311	Req	43	12	No	137FM	12 Rotating General	28311
Salem Hospital +1-3 81 Highland Ave., Salem	NPCorp	216	7,983	Req	43	12	No	110-150FM	6 Rotating General	28411
Mercy Hospital 1-3 233 Carew St., Springfield 4	ChurchRel	340	12,026	Req	33	12	No	200FM	6 Rotating General	28511
Springfield Hospital +1-3 759 Chestnut St., Springfield 7	NPCorp	321	8,779	....	35	12	189	75FM	8 Rotating General	28611
Wesson Memorial Hospital 1-3 140 High St., Springfield 5	NPCorp	143	5,694	None	32	12	190	100FM	4 Rotating General	28711
Waltham Hospital 1-x39 Hope Ave., Waltham 54	NPCorp	147	5,668	Req	36	12	No	200-275FM	4 Rotating General	28811
Memorial Hospital +1-3-4 119 Belmont St., Worcester 5	NPCorp	305	9,499	Req	42	12	No	100FM	9 Rotating General	28911
St. Vincent Hospital +1-3 25 Winthrop St., Worcester 10	ChurchRel	455	9,238	Req	42	12	No	150FM	14 Rotating General	29011
Worcester City Hospital +3-4 71 Jaques Ave., Worcester 9	City	687	12,906	Req	49	12	No	115FM	24 Rotating General	29111
MICHIGAN—Hospitals, 35; Internships, 582										
St. Joseph Mercy Hospital +1-3 326 N. Ingalls St., Ann Arbor	ChurchRel	297	10,479	Req	40	12	No	150FM	14 Rotating General	29211
University Hospital +1-3-4X40 1313 E. Ann St., Ann Arbor	State	1,011	18,766	....	76	12	191	117	8 Rotating (Med. Major) 14 Rot. (Surg. Major) 3 Rot. (Ped. Major) 3 Rot. (Ob.-Gyn. Major) 2 Rot. (Neuro Major) 2 Rot. (Derm. Major) 3 Rot. (Anes. Major) 2 Rot. (Path. Major) 1 Rot. (Otol. Major) 1 Rot. (Ophth. Major) 10 Rot. (Gen. Prac. Maj.) 2 Rot. (Phys. Med. & Rehab. Major)	29312 29313 29314 29315 29374 29375 29377 29386 29378 29379 29381 29380
Leila Y. Post Montgomery Hospital +1 9 Emmett St., Battle Creek	ChurchOpr	175	9,863	Req	35	12	No	200FM	4 Rotating General	29411
Oakwood Hospital 1-3 18101 Oakwood Blvd., Dearborn	NPCorp	224	10,218	Req	45	12	192	200	10 Rotating General	94611
Detroit Memorial Hospital +1 1420 St. Antoine St., Detroit 26	NPCorp	328	10,586	Req	45	12	193	230FM	14 Rotating General	29611
Evangelical Deaconess Hospital +1-3 3245 E. Jefferson Ave., Detroit 7	ChurchRel	185	8,857	Req	32	12	194	255PM	5 Rotating General	29711
Grace Hospital +1-3 4160 John R. St., Detroit 1	NPCorp	745	27,640	Req	45	12-24	No	250	24 Rot. General (12 mo.) 6 Rot. General (24 mo.)	29811 29816
Harper Hospital +1-3 3825 Brush St., Detroit 1	NPCorp	611	24,689	Req	48	12	193	200	36 Rotating General	29911
Henry Ford Hospital +1-3 2799 W. Grand Blvd., Detroit 2	NPCorp	621	19,521	Req	60	12	No	200	40 Rotating General	30011
Mount Carmel Mercy Hospital +1-3-4 6071 W. Outer Drive, Detroit 35	ChurchRel	538	23,080	Req	43	12	No	125FM	20 Rotating General	30211

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Abbreviations and other references will be found on pages 283 and 284.

MICHIGAN—Continued

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
Providence Hospital $^{+1-3}$ 2500 W. Grand Blvd., Detroit 8	ChurchRel	372	15,167	Req	53	12	195	225	12 Rotating General	30311
Receiving Hospital $^{+1}$-X41 1326 St. Antoine St., Detroit 26	City	697	20,209	Req	60	12	196	231	66 Rotating General	29511
St. John Hospital $^{+1-3}$ 22101 Moross Rd., Detroit 36	ChurchRel	272	9,538	Req	44	12	No	250	12 Rotating General	91511
St. Joseph Mercy Hospital $^{+1}$ 2200 E. Grand Blvd., Detroit 11	ChurchRel	251	9,574	Req	39	12	197	225FM	9 Rotating General	30411
Sinai Hospital $^{+1-3-4}$ 6767 W. Outer Drive, Detroit 35	NPCorp	226	7,973	Req	50	12	193	225FM	15 Rotating General	92611
Woman's Hospital $^{+1-3}$ 432 E. Hancock Ave., Detroit 1	NPCorp	246	11,233	Req	26	12	197	225	12 Rotating General	30511
Wayne County General Hospital and Infirmary $^{+1-3}$ Eloise	County	3,462	8,301	Req	31	12	198	265FM	36 Rotating General	30611
Hurley Hospital $^{+1}$ 6th Ave. and Begole St., Flint 2	City	428	17,980	None	40	12	No	250FM	26 Rotating General	30711
McLaren General Hospital $^{+1}$ 401 Ballenger Highway, Flint 2	NPCorp	250	10,346	Req	51	12	199	250PM	12 Rotating General	80611
St. Joseph Hospital $^{+1-3}$ 302 Kensington Ave., Flint 2	ChurchOpr	250	13,815	Req	61	12	No	275	12 Rotating General	30811
Blodgett Memorial Hospital $^{+1-3}$ 1840 Wealthy St., S. E., Grand Rapids 6	NPCorp	318	10,174	Req	65	12	200	200FM	12 Rotating General	30911
Butterworth Hospital $^{+1-3}$ 300 Bostwick Ave., N. E., Grand Rapids 3	NPCorp	423	15,595	Req	33	12	No	200FM	16 Rotating General	31011
St. Mary's Hospital $^{+1-3}$ 250 Cherry St., S. E., Grand Rapids 3	ChurchRel	256	10,638	Req	45	12	No	200FM	14 Rotating General	31111
Bon Secours Hospital $^{1-3}$ 468 Cadieux Rd., Grosse Pointe 30	ChurchRel	150	5,847	None	36	12	197	235FM	6 Rotating General	90611
Highland Park General Hospital $^{+1-3}$ 369 Glendale Ave., Highland Park 3	City	290	11,356	Req	31	12	197	250FM	12 Rotating General	31211
Borgess Hospital $^{+1-3}$ 1521 Gull Rd., Kalamazoo 62	ChurchOpr	260	8,718	Req	46	12	No	200FM	4 Rotating General	31311
Bronson Methodist Hospital $^{+1}$ 252 E. Lovell St., Kalamazoo 8	ChurchRel	250	8,351	Req	55	12	No	240PM	6 Rotating General	31411
Edward W. Sparrow Hospital $^{+1-3}$ 1215 E. Michigan Ave., Lansing 12	NPCorp	291	13,337	None	55	12	201	275	17 Rotating General	31511
St. Lawrence Hospital $^{+1-3}$ 1210 W. Saginaw St., Lansing 15	ChurchRel	275	12,050	None	56	12	No	250FM	16 Rotating General	31611
Pontiac General Hospital $^{+1-3}$ 461 W. Huron St., Pontiac 18	City	198	12,178	Req	41	12	202	275PM	9 Rotating General	31811
St. Joseph Mercy Hospital $^{+1-3}$ 900 Woodward Ave., Pontiac 19	ChurchRel	310	14,397	Req	36	12	No	250FM	12 Rotating General	31911
Saginaw General Hospital $^{+1}$ 1447 N. Harrison St., Saginaw	NPCorp	215	9,264	Req	67	12	203	275PM	6 Rotating General	32011
St. Luke's Hospital $^{+1-3}$ 705 Cooper St., Saginaw	ChurchRel	143	6,608	Req	50	12	No	250PM	6 Rotating General	32111
St. Mary's Hospital $^{+1-3}$ 830 S. Jefferson St., Saginaw	ChurchRel	173	8,167	Req	45	12	No	350PM	6 Rotating General	32211
James Decker Munson Hospital $^{+1-3}$ 6th St., Traverse City	NPCorp	176	6,411	None	70	12	No	225PM	4 Rotating General	32311

MINNESOTA—Hospitals, 13; Internships, 211

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
St. Luke's Hospital $^{+1-3}$ 915 E. 1st St., Duluth 5	NPCorp	355	13,252	Req	94	12	204	75FM	18 Rotating General	32411
St. Mary's Hospital $^{+1-3}$ 429 E. 3rd St., Duluth 11	ChurchRel	285	10,578	Req	66	12	204	75FM	12 Rotating General	32511
Minneapolis General Hospital $^{+1-3-4}$-X42 619 S. 5th St., Minneapolis 15	City	497	7,256	Req	78	12	No	50FM	39 Rotating General	32911
Mount Sinai Hospital $^{+1-3}$ 737 E. 22nd St., Minneapolis 4	NPCorp	212	8,783	Req	59	12	No	100FM	10 Rotating General	86811
Northwestern Hospital $^{+1-3}$ 810 E. 27th St., Minneapolis 7	NPCorp	258	11,812	None	63	12	No	175FM	8 Rotating General 1 Straight Medicine 1 Straight Surgery 1 Straight Pediatrics	33011 33032 33033 33034
St. Barnabas Hospital $^{+1-3}$ 920 S. 7th St., Minneapolis 4	ChurchRel	200	9,844	Req	61	12	205	135FM	10 Rotating General	33111
St. Mary's Hospital $^{+1-3}$ 2500 S. 6th St., Minneapolis 6	ChurchRel	325	14,558	Req	55	12	206	125FM	12 Rotating General	33211
Swedish Hospital $^{+1-3}$ 914 S. 8th St., Minneapolis 4	NPCorp	420	17,778	None	40	12	No	150FM	8 Rotating General	33311
University of Minnesota Hospitals $^{+1-3-4}$-X42 412 Union St., S.E., Minneapolis 14	State	578	11,240	Req	83	12	207	50FM	12 Rotating General 6 Straight Medicine 9 Straight Surgery 9 Straight Pediatrics	33411 33432 33433 33434
Ancker Hospital $^{+1-3}$-X42 495 Jefferson Ave., St. Paul 1	CyCo	850	8,150	Req	57	12	No	75FM	26 Rotating General	33511
Charles T. Miller Hospital $^{+1-3}$ 125 W. College Ave., St. Paul 2	NPCorp	326	11,175	Req	58	12	208	75FM	13 Rotating General	33711
St. Joseph's Hospital $^{+1-3}$ 69 W. Exchange St., St. Paul 2	ChurchRel	282	11,342	Req	62	12	No	75FM	12 Rotating General	33811
St. Luke's Hospital $^{1-3}$ 287 N. Smith Ave., St. Paul 2	ChurchRel	140	6,399	Req	46	12	209	150FM	4 Rotating General	33911

MISSISSIPPI—Hospitals, 2; Internships, 16

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
Mississippi Baptist Hospital $^{+1-3}$ 1190 N. State St., Jackson	ChurchOpr	308	13,387	Req	33	12	No	100FM	12 Rotating General	34011
Mercy Hospital-Street Memorial $^{+1-3}$ 900 Crawford St., Vicksburg	ChurchRel	142	4,178	Req	24	12	210	100FM	4 Rotating General	34111

MISSOURI—Hospitals, 25; Internships, 420

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
St. Louis County Hospital $^{+1-3}$ 601 S. Brentwood Blvd., Clayton 5	County	200	3,453	Req	52	12	No	150FM	12 Rotating General	34211
Kansas City General Hospital No. 1 $^{+1-3}$-X31 24th and Cherry Sts., Kansas City 8	City	486	7,173	Req	58	12	No	75FM	30 Rotating General	34311
Kansas City General Hospital No. 2 $^{+1-3-4}$ 600 E. 22nd St., Kansas City 8	City	243	5,168	Req	44	12	No	75FM	8 Rotating General	34411
Menorah Medical Center $^{+1-3}$-X31 4949 Rockhill Rd., Kansas City 10	NPCorp	338	10,859	Req	58	12	No	150FM	16 Rotating General	34511

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Abbreviations and other references will be found on pages 283 and 284.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
MISSOURI—Continued										
Research Hospital $^{+1-3}$ 2300 Holmes St., Kansas City 8	NPCorp	255	7,500	Req	65	12	211	150FM	8 Rotating General	34611
St. Joseph Hospital $^{+1-3}$ Linwood Blvd. at Prospect Ave., Kansas City 28	ChurchOpr	321	13,073	Req	56	12	No	200-275FM	12 Rotating General 2 Straight Surgery	34711 34733
St. Luke's Hospital $^{+1-3}$ 4400 J. C. Nichols Pkwy., Kansas City 11	NPCorp	427	13,580	Req	61	12	211	150FM	18 Rotating General	34811
St. Mary's Hospital $^{+1-3}$ 101 Memorial Drive, Kansas City 8	ChurchOpr	287	10,576	None	63	12	211	150FM	12 Rotating General	34911
Trinity Lutheran Hospital $^{1-3}$ 3001 Wyandotte St., Kansas City 8	ChurchRel	158	6,208	Req	46	12	211	200FM	8 Rotating General	35011
Missouri Methodist Hospital $^{+1-3}$ 8th and Faraon Sts., St. Joseph 54	ChurchRel	300	7,958	Req	30	12	No	175PM	8 Rotating General	35111
St. Joseph's Hospital $^{1-3}$ 923 Powell St., St. Joseph 19	ChurchOpr	156	6,211	Req	32	12	No	200FM	3 Rotating General	35211
Barnes Hospital $^{+1-3}$-X44 600 S. Kingshighway Blvd., St. Louis 10	NPCorp	825	23,948	Req	76	12	212	10FM	10 Str. Med. (Ward) 14 Str. Med. (Private) 14 Straight Surgery 10 Straight Ob.-Gyn. 5 Straight Pathology	35332 35331 35333 35335 35336
Christian Hospital $^{1-3}$ 4411 N. Newstead Ave., St. Louis 15	NPCorp	140	5,047	Req	41	12	No	175FM	3 Rotating General	35411
De Paul Hospital $^{+1-3}$ 2115 N. Kingshighway Blvd., St. Louis 13	ChurchRel	350	11,626	Req	36	12	No	150FM	9 Rotating General	35511
Evangelical Deaconess Hospital $^{1-3}$ 6150 Oakland Ave., St. Louis 10	ChurchRel	254	8,553	Req	42	12	No	150FM	8 Rotating General	35611
Homer G. Phillips Hospital $^{+1-3-4}$-X44-74 2601 N. Whittier St., St. Louis 13	City	689	15,648	Req	21	12	213	111FM	40 Rotating General	35711
Jewish Hospital $^{+1-3-4}$ 216 S. Kingshighway Blvd., St. Louis 10	NPCorp	298	9,899	Req	48	12	214	75-125FM	15 Rotating General	35811
Lutheran Hospital $^{1-3}$ 2646 Potomac St., St. Louis 18	ChurchOpr	165	6,070	None	36	12	No	150FM	6 Mixed (Med.-Surg.-Ob.-Gyn.)	35922
Missouri Baptist Hospital $^{+1-3}$ 919 N. Taylor Ave., St. Louis 8	ChurchRel	450	12,498	None	39	12	No	125FM	12 Rotating General 2 Rot. (Med. Major) 2 Rot. (Surg. Major)	36011 36012 36013
St. Anthony's Hospital $^{+1-3}$-x43 3520 Chippewa St., St. Louis 18	ChurchRel	250	9,201	None	28	12	215	100FM	6 Rotating General	36111
St. John's Hospital $^{+1-3}$-x43 307 S. Euclid Ave., St. Louis 10	ChurchRel	362	14,020	Req	49	12	No	150FM	14 Rotating General	36211
St. Louis Children's Hospital $^{+1}$-X44 500 S. Kingshighway Blvd., St. Louis 10	NPCorp	136	3,761	Req	75	12	216	10FM	8 Straight Pediatrics	86934
St. Louis City Hospital $^{+1-3}$-X43-44 1515 Lafayette Ave., St. Louis 4	City	1,062	14,023	Req	54	12	No	155	60 Rotating General	36311
St. Luke's Hospital $^{+1}$ 5535 Delmar Blvd., St. Louis 12	ChurchRel	184	6,356	Req	69	12	217	100FM	11 Rotating General	36411
St. Mary's Group of Hospitals $^{+1-3}$-X43 1402 S. Grand Blvd., St. Louis 4	Church Rel	729	19,911	Req	56	12	217	85FM	20 Rotating General 4 Straight Medicine 8 Straight Surgery 2 Straight Pediatrics	36511 36532 36533 36534
MONTANA—Hospitals, 3; Internships, 12										
Butte Community Memorial Hospital $^{+1-3}$ 400 S. Clark St., Butte	NPCorp	144	4,677	Req	35	12	No	100-150FM	4 Rotating General	94711
St. James Hospital $^{1-3}$ Silver and Idaho Sts., Butte	ChurchRel	160	5,562	Req	33	12	No	150FM	4 Rotating General	36611
Montana Deaconess Hospital $^{+1-3}$ 1109 6th Ave., N., Great Falls	ChurchRel	196	5,390	Req	82	12	No	100PM	4 Rotating General	36711
NEBRASKA—Hospitals, 9; Internships, 67										
Bryan Memorial Hospital $^{1-3-4}$-x46 4848 Sumner St., Lincoln 6	ChurchOpr	126	3,778	None	57	12	No	100FM	4 Rotating General	36811
Lincoln General Hospital $^{+1-3}$-x46 2315 S. 17th St., Lincoln 2	NPCorp	173	5,838	Req	80	12	No	160FM	4 Rotating General	36911
St. Elizabeth Hospital $^{+1-3}$-x45 1145 South St., Lincoln 2	ChurchRel	243	9,090	None	44	12	No	200PM	6 Rotating General	37011
Bishop Clarkson Memorial Hospital $^{+1-3}$-x46 26th at Dewey Ave., Omaha 5	ChurchRel	167	7,908	Req	45	12	218	100FM	10 Rotating General	37111
Creighton Memorial St. Joseph's Hosp. $^{+1}$-X45 2305 S. 10th, Omaha 8	ChurchOpr	475	14,837	Req	48	12	219	150FM	12 Rotating General	37211
Immanuel Hospital $^{+1}$-x46 34th St. and Fowler Ave., Omaha 11	ChurchOpr	121	5,005	Req	54	12	220	150FM	5 Rotating General	37311
Nebraska Methodist Hospital $^{+1-3}$-x46 3612 Cuming St., Omaha 3	ChurchRel	257	8,844	None	63	12	221	100FM	8 Rotating General	37411
St. Catherine's Hospital $^{+1-3}$-X45 Forest Ave. and 9th St., Omaha 8	ChurchRel	190	7,736	None	29	12	222	150FM	6 Rotating General	37511
University of Nebraska Hospital $^{+1-3}$-X46 42nd St. and Dewey Ave., Omaha 5	State	163	3,357	Req	88	12	223	150PM	12 Rotating General	37611
NEW HAMPSHIRE—Hospitals, 1; Internships, 14										
Mary Hitchcock Memorial Hospital $^{+1-3}$-X47 2 Maynard St., Hanover	NPCorp	274	6,948	Req	84	12	No	80PM	14 Rotating General	37711
NEW JERSEY—Hospitals, 41; Internships, 385										
Atlantic City Hospital $^{+1-3}$ 26 S. Ohio Ave., Atlantic City	NPCorp	239	8,361	Req	44	12	224	150FM	12 Rotating General	37811
Bayonne Hospital and Dispensary $^{+1-3}$ E. 30th St., Bayonne	NPCorp	200	6,630	Req	29	12	No	125FM	8 Rotating General	37911
Cooper Hospital $^{+1-3}$-x66-68 6th and Stevens Sts., Camden 3	NPCorp	393	13,920	Req	56	12	No	200FM	12 Rotating General	38011
Our Lady of Lourdes Hospital 1600 Haddon Ave., Camden 3	ChurchRel	267	7,656	Req	46	12	No	200FM	10 Rotating General	93311
West Jersey Hospital $^{+1-3}$ Mount Ephraim and Atlantic Aves., Camden 4	NPCorp	268	9,185	Req	41	12	No	175FM	9 Rotating General	38111
East Orange General Hospital $^{1-3}$ S. Munn and Central Aves., East Orange	NPCorp	157	4,840	Req	24	12	225	100FM	4 Rotating General	38211
*Alexian Brothers Hospital ^{3} 655 E. Jersey St., Elizabeth 1	ChurchRel	162	3,858	Req	15	12	226	100FM	8 Rotating General	.....
Elizabeth General Hospital and Dispensary $^{1-3}$ 925 E. Jersey St., Elizabeth 4	NPCorp	213	9,744	Req	29	12	No	100FM	10 Rotating General	38411

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
NEW JERSEY—Continued										
St. Elizabeth Hospital $^{1-3}$ 204 S. Broad St., Elizabeth 2	ChurchRel	222	5,800	Req	27	12	No	100FM	9 Rotating General	38511
Englewood Hospital $^{+1-3}$ 350 Engle St., Englewood	NPCorp	199	7,606	Req	27	12	No	100FM	6 Rotating General	38611
Hackensack Hospital $^{+1-3}$ 22 Hospital Pl., Hackensack	NPCorp	341	12,802	Req	38	12	No	100PM	10 Rotating General	38711
St. Mary's Hospital $^{1-3}$ 4th St. and Willow Ave., Hoboken	ChurchOpr	329	7,600	Req	27	12	No	100FM	13 Rotating General	38811
Christ Hospital $^{+1-3}$ 176 Palisade Ave., Jersey City 6	ChurchRel	320	8,259	Req	27	12	No	100FM	12 Rotating General	38911
Jersey City Hospital $^{+1-3-4}$ 60 Baldwin Ave., Jersey City 4	City	1,600	20,627	Req	37	12	227	67FM	24 Rotating General 2 Straight Medicine 2 Straight Surgery 1 Straight Pediatrics 1 Straight Pathology	39011 39022 39023 39034 39036
St. Francis Hospital $^{1-3}$ 25 E. Hamilton Place, Jersey City 2	ChurchOpr	215	5,015	Req	26	12	227	100FM	5 Rotating General	39111
Monmouth Memorial Hospital $^{+1-3-4}$ 3rd and Pavilion Aves., Long Branch	NPCorp	270	8,415	Req	40	12	No	100-150FM	8 Rotating General	39211
Mountainside Hospital $^{+1-3-4}$ Bay St. and Highland Ave., Montclair	NPCorp	313	9,779	Req	50	12	No	100FM	12 Rotating General	39311
All Souls Hospital ^{3} 95 Mount Kemble Ave., Morristown	ChurchRel	130	4,049	Req	37	12	No	125FM	3 Rotating General	90711
Morristown Memorial Hospital $^{+1-3}$ 100 Madison Ave., Morristown	NPCorp	236	6,922	Req	55	12	228	110FM	7 Rotating General	39411
Fitkin Memorial Hospital $^{+1-3}$ Corlies Ave., Neptune	NPCorp	260	10,935	Req	36	12	No	150FM	8 Rotating General	39511
Harrison S. Martland Medical Center $^{+1-3-4}$ 116 Fairmount Ave., Newark 7	City	700	12,631	Req	26	12	No	114FM	18 Rotating General	39811
Hospital of St. Barnabas and for Women and *Children* $^{+1-3}$ 685 High St., Newark 2	*ChurchRel*	240	8,465	Req	43	12	No	75FM	8 Rotating General	39611
Newark Beth Israel Hospital $^{+1-4}$ 201 Lyons Ave., Newark 8	NPCorp	375	13,646	Req	47	12	No	75FM	12 Rotating General	39711
Presbyterian Hospital $^{+1-3}$ 27 S. 9th St., Newark 7	NPCorp	252	10,883	Req	36	12	No	100FM	4 Rotating General	87211
St. Michael's Hospital $^{+1-3}$ 306 High St., Newark 2	ChurchOpr	422	13,718	Req	38	12	No	100FM	12 Rotating General	39911
St. Peter's General Hospital $^{+1-3}$ 260 Easton Ave., New Brunswick	ChurchOpr	188	8,423	Req	43	12	No	135FM	5 Rotating General	40011
Orange Memorial Hospital $^{+1-3}$ 188 S. Essex Ave., Orange	NPCorp	338	9,359	Req	38	12	No	125FM	8 Rotating General	40111
Bergen Pines County Hospital $^{+1-3}$ E. Ridgewood Ave., Paramus	County	684	2,781	Req	36	12	227	100FM	20 Rotating General	90811
Passaic General Hospital $^{+1-3}$ 350 Boulevard, Passaic	NPCorp	235	8,898	Req	41	12	No	100FM	5 Rotating General	40211
St. Mary's Hospital $^{+1-3}$ 211 Pennington Ave., Passaic	ChurchOpr	192	6,663	Req	44	12	No	75FM	4 Rotating General	40311
Barnert Memorial Hospital $^{1-3}$ 680 Broadway, Paterson 4	NPCorp	141	5,757	Req	38	12	No	100FM	6 Rotating General	40411
Paterson General Hospital $^{+1-3}$ 528 Market St., Paterson 3	NPCorp	372	10,542	Req	31	12	No	100FM	10 Rotating General	40511
St. Joseph Hospital $^{+1-3}$ 703 Main St., Paterson 3	ChurchRel	442	11,228	Req	33	12	No	100FM	10 Rotating General	40611
Perth Amboy General Hospital ^{3} 530 New Brunswick Ave., Perth Amboy	NPCorp	270	11,942	Req	32	12	No	100FM	10 Rotating General	87311
Muhlenberg Hospital $^{+1-3-4}$ Park Ave. and Randolph Rd., Plainfield	NPCorp	334	13,807	Req	34	12	No	100FM	10 Rotating General	40711
Somerset Hospital $^{1-3}$ Rehill Ave., Somerville	NPCorp	171	9,110	Req	32	12	No	150FM	5 Rotating General	93411
Overlook Hospital $^{+1-3}$ 193 Morris Ave., Summit	NPCorp	251	7,417	Req	90	12	No	100FM	12 Rotating General	40811
Holy Name Hospital $^{+1-3}$ 718 Teaneck Rd., Teaneck	ChurchRel	200	7,749	Req	53	12	No	100FM	6 Rotating General	40911
Mercer Hospital $^{+1}$ 446 Bellevue Ave., Trenton 8	NPCorp	246	9,673	Req	36	12	No	150FM	9 Rotating General	41011
St. Francis Hospital $^{+1-3}$ 601 Hamilton Ave., Trenton 9	ChurchRel	350	10,494	Req	37	12	No	150FM	10 Rotating General	41111
William McKinley Memorial Hospital $^{1-3}$ 750 Brunswick Ave., Trenton 8	NPCorp	152	6,304	Req	36	12	No	180FM	5 Rotating General	41211
NEW YORK—Hospitals, 101; Internships, 1,685										
Albany Hospital $^{+1-3-4-X48}$ New Scotland Ave., Albany 8	NPCorp	681	18,459	Req	65	12	No	50-75FM	24 Rotating General 5 Straight Medicine 8 Straight Surgery	41411 41432 41433
Memorial Hospital $^{1-3}$ 161 N. Pearl St., Albany 7	NPCorp	137	3,690	Req	26	12	No	200FM	5 Rotating General	41511
St. Peter's Hospital $^{+3}$ 600 New Scotland Ave., Albany 8	ChurchRel	275	7,590	Req	46	12	229	200FM	8 Rotating General	41611
Binghamton City Hospital $^{+1-3}$ Mitchell and Park Aves., Binghamton	City	434	11,719	Req	55	12	No	125FM	8 Rotating General	41811
Lawrence Hospital $^{1-3}$ 55 Palmer Ave., Bronxville 8	NPCorp	201	5,483	Req	43	12	No	150FM	6 Rotating General	91611
Beth-El Hospital, $^{+1-3}$ Linden Blvd. and Rockaway Pkwy., Brooklyn 12	NPCorp	291	10,324	Req	20	12	230	100FM	18 Rotating General	41911
Brooklyn Hospital $^{+1-3-X54}$ 121 De Kalb Ave., Brooklyn 1	NPCorp	332	9,328	Req	71	12	No	75FM	16 Rotating General	42011
Coney Island Hospital $^{+1-3-4}$ Ocean Pkwy. and Ave. Z, Brooklyn 35	City	253	6,614	Req	25	12	No	71FM	14 Rotating General	42211
Cumberland Hospital $^{+1-3-4-x54}$ 39 Auburn Place, Brooklyn 5	City	287	8,071	Req	30	12	230	65FM	6 Rotating General 2 Straight Medicine 2 Straight Surgery 2 Straight Pediatrics	42311 42322 42333 42334
Greenpoint Hospital $^{+1-3-4-x54}$ Kingsland and Skillman Aves., Brooklyn 11	City	281	7,022	Req	24	12	No	71FM	12 Rotating General	42411
Jewish Hospital $^{+1-3-4-X54}$ 555 Prospect Place, Brooklyn 38	NPCorp	507	15,868	Req	40	12	No	35FM	30 Rotating General 3 Straight Pediatrics	42511 42534

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Abbreviations and other references will be found on pages 283 and 284.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
NEW YORK—Continued										
Kings County Hospital Center $^{+1-3-4}$-X54 451 Clarkson Ave., Brooklyn 3	City	3,451	59,152	Req	26	12	No	70FM	108 Rotating General 26 Straight Medicine 10 Straight Surgery 3 Straight Pediatrics 1 Straight Pathology	42611 42632 42633 42634 42636
Long Island College Hospital $^{+1-3}$-X54 340 Henry St., Brooklyn 1	NPCorp	405	11,805	Req	46	12	No	125PM	16 Rotating General 2 Straight Medicine 2 Straight Surgery 1 Straight Pediatrics	42711 42732 42733 42734
Maimonides Hospital $^{+1-3}$-X54 4802 10th Ave., Brooklyn 19	NPCorp	463	12,659	Req	34	12	No	35FM	24 Rotating General 5 Straight Medicine	42811 42832
Methodist Hospital $^{+1-3}$-x54 506 6th St., Brooklyn 15	ChurchRel	421	10,825	Req	38	12	No	150FM	12 Rotating General 2 Straight Medicine 1 Straight Surgery 1 Straight Pediatrics 1 Straight Pathology	42911 42932 42933 42934 42936
Norwegian Lutheran Deaconesses' Home and Hospital $^{+1-3}$ 4520 4th Ave., Brooklyn 20	ChurchRel	205	6,325	Req	78	12	No	110PM	6 Rotating General 1 Straight Ob.-Gyn.	43011 43035
Prospect Heights Hospital $^{1-3}$ 775 Washington Ave., Brooklyn 38	NPCorp	177	6,812	Req	34	12	No	140PM	4 Rotating General	87411
St. Catherine's Hospital $^{+1}$ 133 Bushwick Ave., Brooklyn 6	ChurchOpr	292	7,456	Req	32	12	No	125FM	10 Rotating General	43111
St. John's Episcopal Hospital $^{+1-3}$ 480 Herkimer St., Brooklyn 13	ChurchOpr	251	7,667	Req	42	12	No	160FM	9 Rotating General 1 Straight Medicine 3 Straight Surgery 1 Straight Pediatrics	43211 43232 43233 43234
St. Mary's Hospital $^{+1-3}$ 1298 St. Marks Ave., Brooklyn 13	ChurchRel	237	5,818	Req	35	12	No	100FM	8 Rotating General	43311
Unity Hospital $^{+1-3}$ 1545 St. Johns Place, Brooklyn 13	NPCorp	226	6,471	Req	24	12	No	100FM	8 Rotating General	43411
Wyckoff Heights Hospital $^{+1-3}$ 374 Stockholm St., Brooklyn 37	NPCorp	252	7,653	Req	16	12	No	100FM	8 Rotating General	43511
Allied Hospitals of the Sisters of Charity $^{+1-3}$ 2157 Main St., Buffalo 14	ChurchRel	440	15,931	Req	30	12	No	200FM	18 Rotating General 2 Straight Ob.-Gyn.	44111 44135
Buffalo General Hospital $^{+1-3-4}$-X49 100 High St., Buffalo 3	NPCorp	620	15,894	Req	49	12	231	150-200FM	18 Rotating General 3 Straight Medicine 3 Straight Surgery	43611 43632 43633
Deaconess Hospital $^{+1-3}$ 563 Riley St., Buffalo 8	NPCorp	277	10,039	Req	36	12	232	200FM	8 Rotating General	43711
Edward J. Meyer Memorial Hospital $^{+1-4}$-X49 462 Grider St., Buffalo 15	County	1,010	11,528	Req	42	12	No	170PM	24 Rotating General	43811
Mercy Hospital $^{+3}$ 565 Abbott Rd., Buffalo 20	ChurchRel	360	12,515	Req	46	12	233	200-225FM	20 Rotating General	43911
Millard Fillmore Hospital $^{+1-3-4}$-x49 875 Lafayette Ave., Buffalo 9	NPCorp	473	18,844	Req	43	12	231	230	15 Rotating General	44011
Sisters of Charity Hospital Buffalo 14	See Allied Hospitals of the Sisters of Charity									
Mary Imogene Bassett Hospital $^{+1-3}$-x48-X50 Atwell Rd., Cooperstown	NPCorp	112	3,369	Req	61	12	No	110PM	2 Rotating General 1 Straight Medicine 4 Mixed (Med.-Surg.)	44211 44232 44224
Arnot Ogden Memorial Hospital $^{+1-3}$ Roe Ave., Elmira	NPCorp	175	7,188	Req	38	12	234	200FM	4 Rotating General	44311
St. Joseph's Hospital $^{1-3}$ 555 E. Market St., Elmira	ChurchRel	229	7,851	None	39	12	No	290-390PM	4 Rotating General	44411
Flushing Hospital and Dispensary $^{+1-3-4}$ 44-14 Parsons Blvd., Flushing 55	NPCorp	313	12,697	Req	33	12	No	150FM	12 Rotating General	44511
North Country Community Hospital $^{1-3}$ St. Andrews Lane, Glen Cove	NPCorp	183	7,113	Req	40	12	No	200FM	6 Rotating General	44611
Glens Falls Hospital $^{1-3}$ 100 Park St., Glens Falls	NPCorp	250	10,071	Req	37	12	No	200FM	6 Rotating General	44711
Meadowbrook Hospital $^{+1-3}$ Bethpage Tpke. and Carman Ave., Hempstead	County	600	13,851	Req	63	12	No	150FM	32 Rotating General	44811
Jamaica Hospital $^{+1-3}$ 89th Ave. and Van Wyck Expwy., Jamaica 18	NPCorp	270	7,897	Req	28	12	No	125FM	10 Rotating General	44911
Mary Immaculate Hospital $^{+1-3-4}$ 152-11 89th Ave., Jamaica 32	ChurchRel	295	8,901	Req	28	12	No	100FM	8 Rotating General	45011
Queens Hospital Center $^{+1-3-4}$ 82-68 164th St., Jamaica 32	City	1,426	13,728	Req	36	12	No	71FM	42 Rotating General 2 Straight Surgery	45111 45133
Charles S. Wilson Memorial Hospital $^{+1-3}$ 33 Harrison St., Johnson City	NPCorp	450	12,529	Req	43	12	No	175PM	12 Rotating General 2 Straight Medicine 2 Straight Surgery 1 Straight Ob.-Gyn.	45211 45232 45233 45235
Our Lady of Victory Hospital $^{+3}$ 800 Ridge Rd., Lackawanna 18	ChurchOpr	260	8,882	Req	30	12	No	150FM	7 Rotating General	45311
*St. John's Long Island City Hospital $^{+1-3}$ 2501 Jackson Ave., Long Island City 1	ChurchOpr	224	6,480	Req	22	12	No	100FM	13 Rotating General	.....
Nassau Hospital $^{+1-3}$ 2nd St., Mineola	NPCorp	250	12,737	Req	33	12	No	100FM	4 Rotating General	45511
Northern Westchester Hospital $^{1-3}$ E. Main St., Mount Kisco	NPCorp	145	4,810	Req	38	12	No	100FM	4 Rotating General	45611
St. Luke's Hospital $^{1-3-4}$ 70 Dubois St., Newburgh	NPCorp	223	6,651	Req	38	12	No	150FM	5 Rotating General	45811
New Rochelle Hospital $^{+1-3-4}$ 16 Guion Pl., New Rochelle	NPCorp	305	9,947	Req	35	12	No	200FM	10 Rotating General	45911
Bellevue Hospital Center-X50-51-53 1st Ave. and 27th St., New York 16	City	2,779	46,866	Req	33	12	...	71FM		
First Medical Division— Columbia University $^{+1-3}$ Dr. Dickinson Richards, Jr.	....	...	.....	Req	..	12	No	71FM	12 Mixed (Med.-Chest-Surg. or Path.)	46067
First Surgical Division— Columbia University $^{+1-3}$ Dr. Kenneth Lewis, Jr.	....	...	.....	Req	..	12	No	71FM	4 Rot. (Surg. Major) 2 Straight Surgery	46113 46133
Second Medical Division— Cornell University $^{+1-3}$ Dr. Thomas Almy	....	...	.....	Req	..	12	No	71FM	16 Straight Medicine 2 Mixed (Med.-Path.)	46232 46227
Second Surgical Division— Cornell University $^{+1-3}$ Dr. Cranston Holman	....	...	.....	Req	..	12	No	71FM	7 Straight Surgery	46333

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Numbe
NEW YORK—Continued										
Third Medical Division— New York University College of Medicine +1-3 Dr. William S. Tillett	....	...	.....	Req	..	12	No	71FM	12 Straight Medicine	45
									4 Mixed (Med.-Surg.)	46
Third Surgical Division— New York University College of Medicine +1-3 Dr. John H. Mulholland	....	...	.....	Req	..	12	No	71FM	6 Straight Surgery	46
									4 Mixed (Surg. Med.)	46
Third Division, Dept. of Pathology— New York University College of Medicine +1-3 Dr. Marvin Kuschner	....	...	.....	....	..	12	No	71FM	1 Straight Pathology	93
Third Division, Dept. of Pediatrics— New York University College of Medicine +1-3 Dr. L. Emmett Holt	....	...	.....	Req	..	12	235	71FM	18 Straight Pediatrics	92
Fourth Medical Division— New York University Post-Graduate *Medical School* +1-3-4 Dr. Charles F. Wilkinson, Jr.	....	...	.....	Req	..	12	236	71FM	10 Straight Medicine	46
Fourth Surgical Division— New York University Post-Graduate Medical School +1-3-4 Dr. J. William Hinton	....	...	.....	Req	..	12	No	71FM	8 Straight Surgery	46
Beth David Hospital +1-3 161 E. 90 St., New York 28	NPCorp	169	5,367	Req	34	12	No	70FM	14 Rotating General	46
Beth Israel Hospital +1-3-4 10 Nathan D. Perlman Pl., New York 3	NPCorp	357	9,271	Req	44	12	No	95PM	16 Rotating General	4701
Bronx Hospital +1-3-4 1276 Fulton Ave , New York 56	NPCorp	329	9,036	Req	30	12	No	35FM	9 Rotating General	4711
Bronx Municipal Hospital Center 1-3-4-X88 Pelham Pkwy. and Eastchester Rd., New York 61	City	511	.....	Req	70	12	No	71FM	48 Rotating General	931
									18 Straight Medicine	931
Columbus Hospital +3 227 E. 19th St , New York 3	ChurchRel	350	6,975	Req	40	12	No	75FM	14 Rotating General	472
Fordham Hospital +1-3-4 Southern Blvd. and Crotona Ave., New York 58	City	414	9,761	....	23	12	No	71FM	17 Rotating General	474
French Hospital +1-3 330 W. 30th St., New York 1	NPCorp	256	5,858	Req	20	12	237	50FM	12 Rotating General	47
Harlem Hospital +1-3-4 532 Lenox Ave., New York 30	City	705	18,112	Req	24	12	No	165FM	42 Rotating General	47
Hospital for Joint Diseases +1-3-4 1919 Madison Ave., New York 35	NPCorp	280	5,373	Req	32	12	238	50FM	9 Rotating General	479
Jewish Memorial Hospital +3-4 196th St. and Broadway, New York 40	NPCorp	185	5,937	Req	37	12	No	75FM	10 Rotating General	48
Knickerbocker Hospital +1-3 70 Convent Ave., New York 27	NPCorp	210	5,314	Req	27	12	239	100FM	6 Rotating General	48
Lebanon Hospital +1-3 1650 Grand Concourse, New York 57	NPCorp	215	6,626	None	36	12	No	50FM	12 Rotating General	482
									1 Straight Medicine	482
									1 Straight Surgery	482
Lenox Hill Hospital +1-3-4 111 E. 76th St., New York 3	NPCorp	482	12,244	Req	44	12	No	80PM	23 Rotating General	483
									1 Mixed (Med.-Surg.-Ob.-Gyn.)	483
Lincoln Hospital +1-3-4 320 Concord Ave., New York 54	City	409	11,879	Req	27	12	No	71FM	12 Rotating General	484
Misericordia Hospital +1-3 531 E. 86th St., New York 28	ChurchRel	183	5,324	Req	32	12	No	75FM	8 Rotating General	48
Montefiore Hospital +1-3-4-X50 210th St. at Bainbridge Ave., New York 67	NPCorp	865	6,422	None	48	12	No	40FM	24 Mixed (Med.-Surg.-Pul. Neurology-Neoplastic)	48
Morrisania City Hospital +1-3-4 1230 Gerard Ave., New York 52	City	471	11,176	Req	31	12	No	71FM	16 Rotating General	48
Mother Cabrini Memorial Hospital +1-3 611 Edgecombe Ave., New York 32	ChurchRel	175	3,769	Req	27	12	No	100FM	7 Rotating General	48
Mount Sinai Hospital +1-4-X50 1 E. 100th St., New York 29	NPCorp	1,002	22,328	Req	68	12	No	25FM	31 Rotating General	490
									9 Straight Surgery	490
New York City Hospital +1-3-4 Welfare Island, New York 17	City	823	11,469	Req	30	12	No	71FM	24 Rotating General	491
New York Hospital +1-3-4-X51 525 E. 68th St., New York 21	NPCorp	1,411	24,464	Req	55	12	No	FM	16 Straight Medicine	492
									15 Straight Surgery	492
									4 Straight Pediatrics	492
									2 Straight Pathology	492
New York Infirmary +1-3-4 Stuyvesant Sq. E. and 15th St., New York 3	NPCorp	250	.....	Req	54	12	No	75FM	5 Rotating General	8751
New York Polyclinic Medical School and Hospital +1-3-4 345 W. 50th St., New York 19	NPCorp	394	9,379	Req	38	12	No	75FM	8 Rotating General	4911
Presbyterian Hospital +1,4-X50 622 W. 168th St., New York 32	NPCorp	1,523	36,493	Req	57	12	No	167	12 Straight Medicine	49
									12 Straight Surgery	49
									3 Straight Pathology	49
Roosevelt Hospital +1-4-X50 428 W. 59th St., New York 19	NPCorp	401	9,038	Req	39	12	No	83PM	6 Mixed (Med.-Ped.-Surg.)	49
									6 Mixed (Surg.-Gyn.-Med.)	49
St. Clare's Hospital +1-3 415 W. 51st St., New York 19	ChurchRel	411	9,677	Req	36	12	No	100FM	13 Rotating General	4971
									1 Straight Medicine	4973
									2 Straight Surgery	4973
St. Francis Hospital +1-3 525 E. 142nd St., New York 54	ChurchRel	360	8,503	Req	28	12	No	100FM	12 Rotating General	4981
St. Luke's Hospital +1-3-4-X50 421 W. 113th St., New York 25	NPCorp	538	10,114	Req	55	12	No	35FM	8 Mixed (9 mo. Med.-3 mo. Surg.)	49
									6 Mixed (9 mo. Surg.-3 mo. Med.)	49
St. Vincent's Hospital +1-3-x53 153 W. 11th St., New York 11	ChurchOpr	679	14,281	Req	48	12	240	80FM	19 Rotating General	5001
									2 Straight Medicine	5003
									6 Straight Surgery	500
Sydenham Hospital +1-3-4 565 Manhattan Ave., New York 27	City	220	5,635	None	47	12	No	71FM	9 Rotating General	5011
Mount St. Mary's Hospital 1-3 515 6th St., Niagara Falls	ChurchRel	200	5,870	Req	60	12	241	200FM	4 Rotating General	50
Niagara Falls Memorial Hospital 1-3 621 10th St., Niagara Falls	NPCorp	297	9,860	Req	31	12	241	200FM	7 Rotating General	93
United Hospital +1-3 406 Boston Post Rd., Port Chester	NPCorp	225	6,895	Req	38	12	No	200FM	8 Rotating General	5041

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Abbreviations and other references will be found on pages 283 and 284.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
NEW YORK—Continued										
. Francis Hospital 1-3 North Rd., Poughkeepsie	ChurchRel	176	6,193	Req	33	12	No	200FM	6 Rotating General	50511
ssar Brothers Hospital 1-3 Reade Pl., Poughkeepsie	NPCorp	219	7,391	Req	42	12	No	200FM	6 Rotating General	50611
nesee Hospital +1-3-x55 224 Alexander St., Rochester 7	NPCorp	252	9,029	Req	73	12-24	No	50-60FM	8 Rot. General (12 mo.) 4 Rot. General (24 mo.) 1 Straight Medicine 2 Straight Surgery 1 Straight Pathology	50711 50716 50732 50733 50736
ighland Hospital +1-3-x55 South Ave. at Bellevue Dr., Rochester 20	NPCorp	197	7,629	Req	67	12	242	75-100FM	9 Rotating General 3 Straight Surgery	50811 50833
chester General Hospital +1-3-4-x55 501 W. Main St., Rochester 8	NPCorp	332	13,141	Req	71	12	243	75FM	20 Rotating General	50911
. Mary's Hospital +1-3-x55 89 Genesee St., Rochester 11	ChurchOpr	335	13,875	Req	52	12	No	175FM	18 Rotating General	51011
rong Memorial-Rochester Municipal Hospitals +1-3-X55 Crittenden Blvd., Rochester 20	NPCorpCy	736	18,628	Req	72	12-24	244	15-30FM	12 Rot. General (24 mo.) 12 Straight Medicine 7 Straight Surgery 4 Straight Pediatrics 5 Straight Pathology 4 Mixed (Surg.-Ob.-Gyn)	51116 51132 51133 51134 51136 51126
llis Hospital +1-3-X48 1101 Nott St., Schenectady 8	NPCorp	358	13,124	Req	47	12	No	125FM	10 Rotating General	51211
t. Clare's Hospital 1-3 600 McClellan St., Schenectady 4	ChurchRel	185	7,811	Req	27	12	No	150FM	6 Rotating General	51311
t. Vincent's Hospital +1-3 835 Bard Ave., Staten Island 10	ChurchOpr	254	8,698	Req	25	12	No	100FM	8 Rotating General	51411
taten Island Hospital +1-3 101 Castleton Ave., Staten Island 1	NPCorp	215	7,444	Req	38	12	No	100FM	8 Rotating General	51511
eneral Hospital +1-3-x56 116 E. Castle St., Syracuse 5	NPCorp	129	5,532	Req	29	12	No	167	3 Rotating General	51711
t. Joseph's Hospital +1-x56 301 Prospect Ave., Syracuse 3	ChurchRel	304	11,254	Req	40	12	No	166PM	12 Rotating General	51811
tate University of New York Upstate Medical Center Hospitals (University Hospital of the Good Shepherd, Crouse-Irving and Memorial Hospitals) +1-3-X56-x56 766 Irving Ave., Syracuse 10	NPCorp	693	24,811	Req	46	12	No	167	20 Rotating General 5 Straight Medicine 2 Straight Surgery 1 Straight Pediatrics	51611 51632 51633 51634
t. Mary's Hospital 1-3 87 Oakwood Ave., Troy	ChurchRel	250	7,221	Req	21	12	No	175FM	6 Rotating General	51911
amaritan Hospital +1-3 Peoples and Burdett Aves., Troy	NPCorp	166	6,373	Req	38	12	No	125FM	8 Rotating General	52011
rasslands Hospital +1-3-4 Valhalla	County	611	4,576	Req	60	12	No	150FM	18 Rotating General	52111
St. Agnes Hospital 3 North St., White Plains	ChurchRel	151	4,347	Req	34	12	No	150FM	4 Rotating General	52211
White Plains Hospital +1-3 41 E. Post Rd., White Plains	NPCorp	210	7,934	Req	42	12	No	150FM	6 Rotating General	52311
St. John's Riverside Hospital +1-3 Ashburton and Palisade Aves., Yonkers	NPCorp	214	6,666	Req	32	12	No	100FM	8 Rotating General	52411
St. Joseph's Hospital 1-3 127 S. Broadway, Yonkers	ChurchRel	180	3,789	Req	24	12	No	100FM	8 Rotating General	52511
Yonkers General Hospital 1-3 127 Ashburton Ave., Yonkers	NPCorp	143	5,119	Req	29	12	No	100FM	7 Rotating General	52611
NORTH CAROLINA—Hospitals, 14; Internships, 193										
Memorial Mission Hospital 1 509 Biltmore Ave., Asheville	NPCorp	315	10,831	Req	40	12	245	100FM	8 Rotating General	94911
North Carolina Memorial Hospital +1-X57 Pittsboro Rd., Chapel Hill	State	483	6,372	Req	78	12	246	125	10 Straight Medicine 8 Straight Surgery 4 Straight Pediatrics 6 Mixed (Med.-Ped.)	90032 90033 90034 90048
Charlotte Memorial Hospital +1-4 1400 Scott Ave., Charlotte 3	NPCorp	352	12,643	Req	68	12	No	200FM	10 Rotating General	52711
Mercy Hospital +1-3 2000 E. 5th St., Charlotte 4	ChurchRel	276	10,949	Req	41	12	No	100FM	6 Rotating General	95011
Duke Hospital +1-3-4-X58 Durham	NPCorp	542	16,124	Req	71	12	247	25FM	24 Straight Medicine 17 Straight Surgery 10 Straight Pediatrics 4 Straight Pathology 4 Mixed (Ob.-Ped.)	52932 52933 52934 52936 52988
Lincoln Hospital +1-3 1301 [illegible]	NPCorp	125	2,882	Req	30	12	No	150FM	4 Rotating General	53011
Watts [illegible] Bro	NPCorp	249	8,810	Req	51	12	No	100FM	7 Rotating General 3 Mixed (Med.-Surg.-Ob.) 2 Straight Medicine 2 Straight Surgery 1 Straight Obstetrics (only)	87711 87769 87732 87733 87739
Moses H. Cone Memorial Hospital 1-3 1200 N. Elm St., Greensboro	NPCorp	310	6,486	Req	57	12	No	150FM	4 Rotating General	94311
Rex Hospital +1-X57 1311 St. Mary's St., Raleigh	NPCorp	311	13,173	Req	38	12	No	150FM	12 Rotating General	53211
St. Agnes Hospital +1 Oakwood Ave. and Tarboro St., Raleigh	ChurchRel	100	3,102	Req	22	12	No	200FM	4 Rotating General	53311
James Walker Memorial Hospital 1-3 N. 10th St., Wilmington	NPCorp	250	10,401	Req	32	12	No	100FM	6 Rotating General	53411
City [illegible]	City	294	13,861	Req	42	12	No	250	15 Rotating General	53511
Kat [illegible] Hospital +1	City	184	5,166	Req	26	12	No	150FM	6 Rotating General	53611
Nor [illegible] 4 +1-3-X59 [illegible] S. Hawthorne Rd., Winston-Salem 7	ChurchOpr	346	10,977	Req	53	12	No	83PM	7 Straight Medicine 3 Straight Surgery 3 Straight Pediatrics 1 Straight Pathology 2 Mixed (Ped.-Ob.-Gyn.)	53732 53733 53734 53736 53708

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations. Abbreviations and other references will be found on pages 283 and 284.

NORTH DAKOTA—Hospitals, 4; Internships, 20

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships
St. John's Hospital [1-3] 365 6th Ave., Fargo	ChurchRel	181	5,909	Req	47	12	No	150FM	4 Rotating General
St. Luke's Hospital + 727 Broadway, Fargo	NPCorp	179	7,069	Req	50	12	No	150FM	8 Rotating General
Grand Forks Deaconess Hospital 212 S. 4th St., Grand Forks	NPCorp	150	5,755	Req	63	12	No	175FM	4 Rotating General
Trinity Hospital [1] 13 4th Ave., S.W., Minot	NPCorp	184	6,660	Req	69	12	No	100FM	4 Rotating General

OHIO—Hospitals, 50; Internships, 697

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships
Akron General Hospital +[1-3] 256 W. Cedar St., Akron 7	NPCorp	221	13,273	Req	48	12	248	200FM	24 Rotating Genera
City Hospital +[1-3] 525 E. Market St., Akron 9	NPCorp	472	17,845	Req	45	12	248	200FM	24 Rotating Genera
St. Thomas Hospital +[1-3] 444 N. Main St., Akron 10	ChurchRel	207	9,450	Req	58	12	No	200FM	12 Rotating Genera
Aultman Hospital +[1-3] 625 Clarendon Ave., S.W., Canton 10	NPCorp	353	12,904	Req	43	12	No	250PM	14 Rotating Genera
Mercy Hospital +[1-3] Market Ave. and 8th St., N.W., Canton 2	ChurchRel	302	13,712	Req	37	12	No	125FM	6 Rotating Genera
Bethesda Hospital +[1-3] Oak St. and Reading Rd., Cincinnati 6	ChurchRel	230	9,981	Req	38	12	249	150FM	8 Rotating Genera 2 Mixed (Med.-Ob.-
Christ Hospital +[1] 2139 Auburn Ave., Cincinnati 19	ChurchRel	356	11,373	Req	51	12	249	150FM	13 Rotating Genera
Cincinnati General Hospital +[1-3-4]-X60 3231 Burnet Ave., Cincinnati 29	City	810	15,027	Req	64	12	250	15FM	52 Rotating Genera
Deaconess Hospital +[1-3] Clifton Ave. and Straight St., Cincinnati 20	ChurchRel	158	5,522	Req	32	12	251	125FM	6 Rotating Genera
Good Samaritan Hospital +[1-3] 3217 Clifton Ave., Cincinnati 20	ChurchRel	559	17,958	None	38	12	No	150FM	16 Rotating Genera
Jewish Hospital +[1-3] Burnet Ave., Cincinnati 29	NPCorp	370	13,772	Req	58	12	252	125FM	16 Rotating Genera
St. Mary's Hospital +[1-3] 816 Betts St., Cincinnati 14	ChurchRel	205	6,175	Req	35	12	No	200FM	11 Rotating Genera
City Hospital +[1-3-4]-X61 3395 Scranton Rd., Cleveland 9	City	994	10,145	Req	49	12	No	80FM	30 Rotating Genera
Evangelical Deaconess Hospital +[1-3] 4229 Pearl Rd., Cleveland 9	ChurchRel	201	8,557	None	30	12	No	100FM	8 Rotating Genera
Fairview Park Hospital +[1-3] 18101 Lorain Ave., Cleveland 11	NPCorp	150	7,668	Req	29	12	No	100FM	6 Rotating Genera
Lutheran Hospital +[1-3] 2609 Franklin Blvd., Cleveland 13	ChurchRel	189	7,461	None	51	12	253	150FM	12 Rotating Genera
Mount Sinai Hospital +[1-4] 1800 E. 105th St., Cleveland 6	NPCorp	348	14,409	Req	38	12	No	150FM	18 Rotating Genera
St. Alexis Hospital +[1-3] 5163 Broadway, Cleveland 27	ChurchRel	234	10,770	Req	38	12	No	250PM	8 Rotating Genera
St. John's Hospital +[1-3] 7911 Detroit Ave., Cleveland 2	ChurchRel	236	8,342	Req	36	12	No	150FM	7 Rotating Genera
St. Luke's Hospital +[1-3-4] 11311 Shaker Blvd., Cleveland 4	ChurchRel	448	18,088	Req	45	12	No	100FM	27 Rotating Genera
St. Vincent Charity Hospital +[1-3] 2222 Central Ave., Cleveland 15	ChurchRel	317	9,896	Req	38	12	254	200PM	15 Rotating Genera
University Hospitals +[1]-X61 2065 Adelbert Rd., Cleveland 6	NPCorp	729	22,669	Req	65	12	No	100PM	16 Rotating Genera 12 Straight Medicin 6 Straight Surgery 2 Straight Pediatr
Doctors Hospital +[1-3] 12345 Cedar Rd., Cleveland Heights 6	NPCorp	185	7,179	None	56	12	No	100FM	12 Rotating Genera
Grant Hospital +[3] 125 S. Grant Ave., Columbus 15	NPCorp	254	10,563	None	30	12	255	200FM	12 Rotating Genera
Mount Carmel Hospital +[1] 793 W. State St., Columbus 22	ChurchRel	400	14,847	None	42	12	255	200FM	15 Rotating Genera
University Hospitals +[1-4]-X62 10th and Perry Sts., Columbus 10	State	600	18,142	Req	72	12	256	125	48 Rotating General
White Cross Hospital +[1-3-4] 700 N. Park St., Columbus 8	ChurchRel	329	13,651	Req	39	12	No	225	12 Rotating General
Good Samaritan Hospital +[1-3] 1425 Fairview Ave., Dayton 6	ChurchRel	310	14,254	Req	53	12	No	200PM	12 Rotating General
Miami Valley Hospital +[1-3-4] 1 Wyoming St., Dayton 9	NPCorp	564	17,933	Req	83	12-24	No	135-185PM	12 Rot. General (12 4 Rot. General (24
St. Elizabeth Hospital +[1-3] 49 Hopeland St., Dayton 8	ChurchRel	456	14,612	Req	31	12	No	125FM	16 Rotating General
Huron Road Hospital +[1-3] 13951 Terrace Rd., East Cleveland 12	NPCorp	283	11,765	Req	44	12	No	200FM	8 Rotating General
Elyria Memorial Hospital +[1-3] 630 E. River St., Elyria	NPCorp	250	6,513	Req	36	12	No	100-150FM	4 Rotating General
Euclid-Glenville Hospital +[1-3] E. 185th St. and Lake Erie, Euclid 19	NPCorp	188	7,208	Req	42	12	No	100FM	6 Rotating General
Marymount Hospital +[3] 12300 McCracken Rd., Garfield Heights 25	ChurchRel	190	7,627	Req	38	12	253	250FM	10 Rotating General
Mercy Hospital +[1-3] 116 Dayton St., Hamilton	ChurchRel	300	12,024	Req	43	12	No	150FM	6 Rotating General
Lakewood Hospital +[1-3] 14519 Detroit Ave., Lakewood 7	City	275	10,561	Req	35	12	No	175FM	6 Rotating General
Lima Memorial Hospital +[1-3] Linden and Mobel Sts., Lima	NPCorp	251	10,024	Req	34	12	No	250FM	10 Rotating General
St. Rita's Hospital +[1-3] 801 W. High St., Lima	ChurchOpr	281	11,358	Req	37	12	257	225PM	10 Rotating General
Mercy Hospital [1] 1343 N. Fountain Blvd., Springfield	ChurchRel	280	9,329	Req	47	12	No	175FM	8 Rotating General
Springfield City Hospital [1] 2615 E. High St., Springfield	City	247	8,642	Req	42	12	No	175FM	9 Rotating General
Ohio Valley Hospital [3] 380 Summit Ave., Steubenville	NPCorp	203	8,589	Req	37	12	258	225FM	8 Rotating General
Flower Hospital [1-3] 3349 Cherry St., Toledo 12	ChurchRel	167	7,219	Req	35	12	255	200FM	5 Rotating General
Maumee Valley Hospital +[1-3] 2025 Arlington Ave., Toledo 9	County	292	4,060	Req	47	12	No	200FM	8 Rotating General
Mercy Hospital +[1-3] 2221 Madison Ave., Toledo 2	ChurchRel	282	12,022	Req	48	12	No	200FM	14 Rotating General

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
OHIO—Continued										
rside Hospital $^{1-3}$ 1600 Summit St., Toledo 11	NPCorp	166	6,489	Req	32	12	No	200FM	6 Rotating General	58111
Charles Hospital $^{1-3}$ Wheeling and Navarre Sts., Toledo 5	ChurchRel	201	5,448	Req	35	12	No	250FM	8 Rotating General	95111
Vincent's Hospital $^{*1-3}$ 2213 Cherry St., Toledo 8	ChurchRel	438	16,006	Req	35	12	259	200FM	15 Rotating General	58211
do Hospital $^{*1-3}$ 2142 N. Cove Blvd., Toledo 6	NPCorp	278	11,669	Req	61	12	No	200FM	12 Rotating General	58311
Elizabeth Hospital $^{*1-3}$ 1044 Belmont Ave., Youngstown 4	ChurchRel	333	13,735	Req	27	12	No	200PM	10 Rotating General	58411
ngstown Hospital $^{*1-3-4}$ Oak Hill and Francis St., Youngstown 1 Gypsy Lane at Goleta Ave., Youngstown 4	NPCorp	685	22,364	Req	41	12	No	150FM	18 Rotating General	58511
OKLAHOMA—Hospitals, 6; Internships, 76										
ry Hospital-Oklahoma City General 501 N.W. 12th St., Oklahoma City 3	ChurchRel	147	7,010	Req	45	12	260	100PM	8 Rotating General	58611
Anthony Hospital $^{*-x63}$ 601 N.W. 9th St., Oklahoma City 3	ChurchRel	387	14,127	Req	27	12	No	100PM	10 Rotating General	58711
versity of Oklahoma Hospitals $^{*1-3-4-X63}$ 800 N.E. 13th, Oklahoma City 4	State	433	9,167	Req	51	12	No	75PM	16 Rotating General 4 Mixed (Med.-Surg.) 4 Mixed (Ob.-Gyn.-Ped.)	58811 58824 58808
ley Hospital $^{*1-x63}$ 300 N.W. 12th, Oklahoma City 3	Part	200	10,405	Req	45	12	260	100FM	8 Rotating General	59011
lcrest Medical Center ^{*1} 1653 E. 12th St., Tulsa 10	NPCorp	350	16,082	Req	37	12	No	100FM	16 Rotating General	59111
John's Hospital $^{*1-3}$ 1923 S. Utica St., Tulsa 4	ChurchRel	460	21,807	Req	25	12	No	100- 175FM	10 Rotating General	59211
OREGON—Hospitals, 7; Internships, 99										
red Heart General Hospital ^{1} 751 E. 12th Ave., Eugene	ChurchRel	275	12,751	Req	72	12	No	150FM	8 Rotating General	59311
anuel Hospital $^{*1-3}$ 2801 Gantenbein Ave., Portland 12	ChurchOpr	460	15,162	Req	57	12	No	250PM	14 Rotating General	59411
od Samaritan Hospital $^{*1-3}$ 1015 N.W. 22nd Ave., Portland 10	ChurchRel	447	13,745	None	67	12	No	150PM	16 Rotating General 1 Straight Pathology	59511 59536
rtland Sanitarium and Hospital ^{1} 932 S.E. 60th Ave., Portland 15	ChurchRel	176	9,402	Req	41	12	No	150	8 Rotating General	59611
ovidence Hospital $^{*1-3}$ 700 N.E. 47th Ave., Portland 13	ChurchRel	283	10,558	Req	79	12	261	150PM	12 Rotating General	59711
Vincent's Hospital $^{*1-3}$ 2447 N.W. Westover Rd., Portland 10	ChurchRel	360	13,500	Req	53	12	262	150PM	12 Rotating General	59811
iversity of Oregon Medical School Hospitals and Clinics $^{*1-X64}$ 3181 S.W. Sam Jackson Park Rd., Portland 1	State-Co	463	7,993	Req	65	12	No	75FM	28 Rotating General	59911
PENNSYLVANIA—Hospitals, 77; Internships, 918										
ington Memorial Hospital $^{*1-3-4}$ 1200 Old York Rd., Abington	NPCorp	303	9,805	Req	55	12	No	50FM	12 Rotating General	60011
lentown Hospital $^{*1-3}$ 17th and Chew Sts., Allentown	NPCorp	508	15,304	Req	61	12	No	200FM	14 Rotating General	60111
cred Heart Hospital ^{*1} 4th and Chew Sts., Allentown	ChurchRel	397	9,581	Req	46	12	No	200FM	10 Rotating General	60211
toona Hospital $^{1-3}$ 7th St. and Howard Ave., Altoona	NPCorp	322	8,943	Req	30	12	No	240FM	12 Rotating General	60311
ercy Hospital ^{1} 2601 8th Ave., Altoona	NPCorp	165	6,986	Req	31	12	No	200FM	4 Rotating General	60411
Luke's Hospital $^{*1-4}$ 801 Ostrum St., Bethlehem	NPCorp	363	11,358	Req	37	12	No	200FM	12 Rotating General	60511
ryn Mawr Hospital $^{*1-3}$ Bryn Mawr Ave., Bryn Mawr	NPCorp	358	11,133	Req	57	12	No	75FM	12 Rotating General	60611
hester Hospital $^{*1-3-4}$ 9th and Barclay Sts., Chester	NPCorp	287	9,389	Req	61	12	No	250FM	8 Rotating General	60711
eorge F. Geisinger Memorial Hospital and Foss Clinic $^{*1-3-4}$ Danville	NPCorp	270	9,911	Req	57	12	No	100FM	12 Rotating General	60811
Thomas M. Fitzgerald Mercy Hospital $^{*1-3-x68}$ Lansdowne Ave. and Baily Rd., Darby	ChurchRel	318	9,771	Req	37	12	No	200FM	12 Rotating General	60911
Easton Hospital $^{*1-3-4}$ 21st and Lehigh Sts., Easton	NPCorp	231	8,256	Req	49	12	No	200FM	5 Rotating General	61011
Hamot Hospital $^{*1-3}$ 4 E. 2nd St., Erie 6	NPCorp	304	11,646	Req	46	12	No	150- 200FM	10 Rotating General	61111
St. Vincent's Hospital $^{*1-3}$ 2420 Sassafras St., Erie 6	NPCorp	305	12,056	Req	41	12	No	200FM	10 Rotating General	61211
Westmoreland Hospital ^{*1} 532 W. Pittsburgh St., Greensburg	NPCorp	251	8,642	None	31	12	No	250FM	4 Rotating General	61311
Harrisburg Hospital $^{*1-3-4-X65}$ Front and Mulberry Sts., Harrisburg	NPCorp	492	14,148	Req	54	12	No	200FM	15 Rotating General	61411
Harrisburg Polyclinic Hospital ^{*1} 3rd and Radnor Sts., Harrisburg	NPCorp	368	11,167	Req	44	12	No	200FM	12 Rotating General	61511
Conemaugh Valley Memorial Hospital $^{1-3}$ 1086 Franklin St., Johnstown	NPCorp	357	13,224	Req	35	12	No	225FM	10 Rotating General	61611
Nesbitt Memorial Hospital ^{1} 562 Wyoming Ave., Kingston	NPCorp	202	6,584	Req	28	12	No	300FM	4 Rotating General	95211
Lancaster General Hospital ^{*1} 525 N. Duke St., Lancaster	NPCorp	450	13,092	Req	34	12	No	200FM	12 Rotating General	61811
St. Joseph's Hospital $^{*1-3}$ College Ave. and Walnut St., Lancaster	ChurchOpr	263	7,186	Req	47	12	No	175FM	6 Rotating General	61911
McKeesport Hospital ^{1} 1500 5th Ave., McKeesport	NPCorp	445	13,830	Req	24	12	No	200- 250FM	10 Rotating General	62011
Montgomery Hospital $^{1-3}$ Powell and Fornance Sts., Norristown	NPCorp	187	7,626	Req	41	12	No	250FM	6 Rotating General	62111
Sacred Heart Hospital ^{*1} 1430 De [illegible]	ChurchRel	118	4,742	Req	44	12	No	250FM	2 Rotating General	62211
Albert Eins[illegible]										
Northern [illegible] X York ar[illegible]	NPCorp	394	13,046	Req	44	12	No	75FM	18 Rotating General	63111
Southern [illegible] 1429 S. 5th St., Philadelphia 47	NPCorp	264	7,925	Req	63	12	No	75FM	15 Rotating General	63711

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PENNSYLVANIA—Continued									
Chestnut Hill Hospital $^{+1-3}$ 8835 Germantown Ave., Philadelphia 18	NPCorp	127	5,051	Req	42	12	No	250FM	4 Rotating General
Episcopal Hospital $^{+1-3-4}$-X67 Front St. and Lehigh Ave., Philadelphia 25	NPCorp	464	9,188	Req	55	12	No	150FM	11 Rotating General
Frankford Hospital $^{+1-3}$ 4940 Frankford Ave., Philadelphia 24	NPCorp	188	6,310	Req	52	12	No	200FM	8 Rotating General
Germantown Dispensary and Hospital $^{+1}$-x66-69 E. Penn and E. Wister Sts., Philadelphia 44	NPCorp	313	10,049	Req	58	12	No	100FM	12 Rotating General
Graduate Hospital of the University of Pennsylvania $^{+1-3-4}$ 19th and Lombard Sts., Philadelphia 46	*NPCorp*	*350*	*9,056*	*Req*	41	12	*263*	*42FM*	*12 Rotating General*
Hahnemann Medical College and Hospital $^{+1}$-X65 230 N. Broad St., Philadelphia 2	NPCorp	592	14,181	Req	44	12	No	50FM	24 Rotating General
Hospital of the University of Pennsylvania $^{+1-3-4}$-X68 3400 Spruce St., Philadelphia 4	NPCorp	810	23,658	Req	69	12	No	42FM	32 Rotating General
Hospital of the Woman's Medical College of Pennsylvania $^{+1}$-X69 3300 Henry Ave., Philadelphia 29	NPCorp	206	6,037	Req	62	12	No	100FM	6 Rotating General
Jefferson Medical College Hospital $^{+3-4}$-X66 10th and Sansom Sts., Philadelphia 7	NPCorp	786	18,137	Req	55	12	No	25FM	44 Rotating General
Lankenau Hospital $^{+1}$-x66 Lancaster & City Line Aves., Philadelphia 31	NPCorp	335	8,067	Req	46	12	No	75FM	10 Rotating General
Memorial Hospital $^{1-3}$-x69 5800 Ridge Ave., Philadelphia 28	NPCorp	153	4,745	Req	25	12	264	250FM	4 Rotating General
Methodist Episcopal Hospital $^{+1-3}$-x66 Broad and Wolf Sts., Philadelphia 48	ChurchRel	240	5,868	Req	22	12	No	150FM	6 Rotating General
Misericordia Hospital ^{1} 54th St. and Cedar Ave., Philadelphia 43	ChurchOpr	283	9,565	Req	28	12	No	200FM	10 Rotating General
Nazareth Hospital $^{+1}$ 8050 Holme Ave., Philadelphia 15	ChurchRel	220	9,671	....	37	12	265	200FM	8 Rotating General
Pennsylvania Hospital $^{+1-3-4}$-X66-68 8th and Spruce Sts., Philadelphia 7	NPCorp	445	11,827	Req	57	12	266	FM	18 Rotating General
Philadelphia General Hosp. $^{+1-4}$-X65-66-67-68-69 34th St. and Curie Ave., Philadelphia 4	City	2,105	21,212	None	47	12	No	55FM	108 Rotating General
Presbyterian Hospital $^{+1-4}$-X68 51 N. 39th St., Philadelphia 4	ChurchRel	329	7,997	Req	57	12	No	100FM	12 Rotating General
St. Agnes Hospital $^{1-3}$-x65 1900 S. Broad St., Philadelphia 45	ChurchRel	350	9,233	Req	22	12	No	250FM	8 Rotating General
St. Joseph's Hospital $^{+1-3-4}$-x66 16th St. and Girard Ave., Philadelphia 30	ChurchRel	199	5,629	Req	20	12	No	250FM	6 Rotating General
St. Luke's and Children's Medical Center $^{+1}$-x65 Franklin and Thompson Sts., Philadelphia 22	NPCorp	238	7,602	Req	19	12	No	200FM	8 Rotating General
St. Mary's Hospital $^{+3}$-x66 Frankford Ave. and Palmer St., Philadelphia 25	ChurchOpr	280	6,646	Req	27	12	No	200FM	8 Rotating General
Temple University Hospital $^{+1-3}$-X67 3401 N. Broad St., Philadelphia 40	NPCorp	543	16,071	Req	57	12	267	25FM	36 Rotating General
Woman's Hospital $^{+1-3}$-X69 Preston and Parrish Sts., Philadelphia 4	NPCorp	153	5,247	Req	36	12	No	150FM	2 Rotating General 1 Rot. (Ob.-Gyn. Major) 1 Straight Medicine
Allegheny General Hospital $^{+1-4}$-X70 320 E. North Ave., Pittsburgh 12	NPCorp	568	15,131	Req	34	12	No	150-182FM	18 Rotating General
Mercy Hospital $^{+1-3}$-X70 1400 Locust St., Pittsburgh 19	ChurchRel	655	15,113	Req	46	12	No	150FM	24 Rotating General
Monteflore Hospital $^{+1-3-4}$ 3459 5th Ave., Pittsburgh 13	NPCorp	310	9,899	Req	50	12	No	83FM	12 Rotating General
*Pittsburgh Hospital $^{+1-3}$ 6655 Frankstown Ave., Pittsburgh 6	NPCorp	225	7,107	Req	33	12	No	200FM	6 Rotating General
Presbyterian Hospital $^{+1-3}$-X70 230 Lothrop St., Pittsburgh 13	NPCorp	251	5,486	Req	43	12	268	50FM	20 Rotating General
St. Francis General Hospital and Rehabilitation Institute $^{+1-3-4}$-X70 408 45th St., Pittsburgh 1	NPCorp	687	14,745	Req	43	12	No	200FM	18 Rotating General
St. John's General Hospital $^{+1-3}$ 3339 McClure Ave., Pittsburgh 12	NPCorp	186	6,762	Req	31	12	No	200FM	5 Rotating General
St. Joseph's Hospital and Dispensary ^{1} 2117 Carson St., Pittsburgh 3	ChurchOpr	170	5,146	Req	38	12	No	250FM	6 Rotating General
St. Margaret Memorial Hospital $^{+1}$ 265 46th St., Pittsburgh 1	ChurchRel	151	3,585	Req	54	12	No	175FM	4 Rotating General
Shadyside Hospital $^{1-3}$ 5230 Centre Ave., Pittsburgh 32	NPCorp	301	8,718	Req	46	12	No	230PM	10 Rotating General
South Side Hospital $^{+1-3}$ S. 20th and Jane Sts., Pittsburgh 3	NPCorp	316	9,213	Req	43	12	No	225FM	8 Rotating General
Western Pennsylvania Hospital $^{+1-3-4}$ 4800 Friendship Ave., Pittsburgh 24	NPCorp	551	15,567	Req	43	12	No	200FM	18 Rotating General
Community General Hospital $^{+1-3}$ 135 N. 6th St., Reading	NPCorp	173	5,179	Req	38	12	No	200FM	5 Rotating General
Reading Hospital $^{+1}$ 6th and Spruce Sts., Reading	NPCorp	422	12,414	Req	46	12	No	200FM	14 Rotating General
St. Joseph's Hospital $^{+1-3}$ 1215 Walnut St., Reading	ChurchRel	206	7,066	Req	56	12	269	200FM	6 Rotating General
Robert Packer Hospital $^{+1-3}$-X65 S. Wilbur Ave., Sayre	NPCorp	340	13,593	Req	57	12	No	75FM	12 Rotating General
Scranton State Hospital $^{+1}$ 201 Mulberry St., Scranton 3	State	290	6,142	Req	29	12	No	253FM	10 Rotating General
Sewickley Valley Hospital $^{1-3}$ Blackburn Rd., Sewickley	NPCorp	206	6,865	Req	26	12	No	225FM	8 Rotating General
Sharon General Hospital $^{+}$ 740 E. State St., Sharon	NPCorp	253	10,836	Req	25	12	No	100FM	5 Rotating General
Allegheny Valley Hospital $^{1-3}$ 1300 Carlisle St., Tarentum	NPCorp	201	8,197	Req	30	12	270	225FM	4 Rotating General
Uniontown Hospital $^{1-3}$ 500 W. Berkeley St., Uniontown	NPCorp	215	8,588	Req	32	12	No	300FM	5 Rotating General
Washington Hospital 155 Wilson Ave., Washington	NPCorp	206	6,751	Req	32	12	No	200FM	6 Rotating General
Chester County Hospital $^{+1}$ Boot Rd., West Chester	NPCorp	155	4,866	Req	47	12	No	250FM	6 Rotating General
Mercy Hospital $^{+1-4}$ 196 Hanover St., Wilkes-Barre	Church Rel	193	5,886	Req	27	12	No	300FM	6 Rotating General

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Abbreviations and other references will be found on pages 283 and 284.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
PENNSYLVANIA—Continued										
kes-Barre General Hospital +^{1} N. River and Auburn Sts., Wilkes-Barre	NPCorp	376	10,393	Req	30	12	No	200FM	10 Rotating General	67111
ımbia Hospital +^{1} 312 Penn Ave., Wilkinsburg	NPCorp	191	6,676	Req	40	12	No	250FM	6 Rotating General	67211
ine Providence Hospital $^{1-3}$ 1100 Grampian Blvd., Williamsport	ChurchRel	185	5,766	Req	38	12	No	200FM	4 Rotating General	91311
liamsport Hospital +^{1} 777 Rural Ave., Williamsport 20	NPCorp	290	8,250	Req	39	12	No	200FM	8 Rotating General	67311
k Hospital +^{1} S. George St. and Rathton Rd., York	NPCorp	344	11,418	Req	36	12	No	200FM	8 Rotating General	67411
RHODE ISLAND—Hospitals, 6; Internships, 60										
ʒport Hospital +$^{1-3}$ Friendship St., Newport	NPCorp	181	5,249	Req	33	12	271	100-150FM	6 Rotating General	67511
norial Hospital +$^{1-3}$ Prospect St., Pawtucket	NPCorp	214	7,976	Req	39	12	No	200FM	8 Rotating General	67611
lam Hospital +$^{1-3}$ 164 Summit Ave., Providence 6	NPCorp	150	5,166	Req	29	12	No	200FM	8 Rotating General	95311
ɔde Island Hospital +$^{1-3-4}$ 593 Eddy St., Providence 2	NPCorp	600	15,337	Req	49	24	272	75FM	18 Rotating General	67711
ger Williams General Hospital +$^{1-3}$ 825 Chalkstone Ave., Providence 8	NPCorp	210	7,371	Req	30	12	No	200FM	8 Rotating General	67811
Joseph's Hospital $^{1-3}$ 21 Peace St., Providence 7	ChurchOpr	310	8,010	Req	26	12	273	100-150FM	12 Rotating General	67911
SOUTH CAROLINA—Hospitals, 6; Internships, 90										
per Hospital +$^{1-3}$-X71 300 Calhoun St., Charleston 16	NPCorp	450	13,134	Req	42	12	No	125FM	21 Rotating General	68011
lumbia Hospital of Richland County +$^{1-3}$ 2020 Hampton St., Columbia 4	County	440	13,690	Req	31	12	No	150FM	18 Rotating General	68111
Leod Infirmary +$^{1-3}$ 121 W. Cheves St., Florence	NPCorp	202	8,348	Req	33	12	No	200FM	6 Rotating General	68211
enville General Hospital +$^{1-3-4}$ 100 Mallard St., Greenville	CyCo	540	16,433	Req	42	12	No	100FM	24 Rotating General	68311
ingeburg Regional Hospital +^{3} 550 Carolina Ave., N.E., Orangeburg	City	161	6,798	Req	33	12	No	150FM	6 Rotating General	68411
artanburg General Hospital + 855 N. Church St., Spartanburg	County	370	14,790	Req	29	12	No	150FM	15 Rotating General	68511
SOUTH DAKOTA—Hospitals, 3; Internships, 24										
Kennan Hospital $^{1-3}$-x72 800 E. 21st St., Sioux Falls	ChurchOpr	196	7,269	None	35	12	No	150FM	7 Rotating General	68611
ux Valley Hospital $^{1-3}$-x72 1123 S. Euclid Ave., Sioux Falls	NPCorp	190	9,202	None	32	12	274	150FM	10 Rotating General	68711
cred Heart Hospital +$^{1-3}$-X72 W. 4th St., Yankton	ChurchRel	220	5,829	Req	42	12	No	150FM	7 Rotating General	68811
TENNESSEE—Hospitals, 14; Internships, 222										
ıroness Erlanger Hospital +$^{1-3-4}$ 261 Wiehl St., Chattanooga 3	CyCo	469	19,374	Req	42	12	No	100FM	12 Rotating General 2 Mixed (Med.-Ob.-Ped.)	68911 68950
lolston Valley Community Hospital ^{1} Ravine St., Kingsport	NPCorp	245	11,054	Req	28	12	No	250FM	8 Rotating General	.....
ast Tennessee Baptist Hospital +$^{1-3}$ Blount Ave., Knoxville 10	ChurchRel	254	11,010	Req	33	12	275	250FM	12 Rotating General	69011
ɔrt Sanders Presbyterian Hospital $^{1-3}$ 1909 W. Clinch Ave., Knoxville 16	NPCorp	189	8,277	Req	31	12	276	250FM	8 Rotating General	69111
noxville General Hospital +$^{1-4}$ Cleveland Pl., Knoxville 17	City	285	7,115	Req	30	12	No	128PM	12 Rotating General	.....
Mary's Memorial Hospital +$^{1-3}$ Oak Hill Ave., Knoxville 17	ChurchRel	285	10,588	Req	36	12	275	250PM	12 Rotating General	69311
aptist Memorial Hospital +$^{1-3}$ 899 Madison Ave., Memphis 3	ChurchRel	545	22,629	Req	35	12	277	75-100FM	26 Rotating General 1 Straight Medicine 2 Straight Surgery	69411 69432 69433
John Gaston Hospital +$^{1-3-4}$-X73 860 Madison Ave., Memphis 3	City	575	21,225	....	55	12	No	35FM	36 Rotating General	.....
ethodist Hospital + 1265 Union Ave., Memphis 4	ChurchOpr	278	13,989	Req	28	12	278	75FM	12 Rotating General	69611
t. Joseph Hospital +$^{1-3}$ 264 Jackson Ave., Memphis 7	ChurchRel	280	12,070	Req	44	12	No	75-100FM	12 Rotating General	69711
aptist Hospital +$^{1-3}$ 2000 Church St., Nashville 3	ChurchOpr	242	11,527	Req	41	12	No	150FM	12 Rotating General	69911
eorge W. Hubbard Hospital +$^{1-3-4}$-X74 1005 18th Ave., N., Nashville 8	ChurchRel	197	4,897	Req	44	12	No	100FM	12 Rotating General	69811
t. Thomas Hospital +$^{1-3}$ 2000 Hayes St., Nashville 4	ChurchRel	240	9,965	Req	32	12	No	175FM	6 Rotating General 2 Straight Medicine 2 Straight Surgery 1 Straight Pediatrics	70111 70132 70133 70134
Vanderbilt University Hospital +$^{1-3}$-X75 21st Ave. S., at Edgehill, Nashville 5	NPCorp	376	11,051	Req	52	12	No	25FM	10 Straight Medicine 8 Straight Surgery 7 Straight Pediatrics 4 Straight Ob.-Gyn. 3 Straight Pathology	70232 70233 70234 70235 70236
TEXAS—Hospitals, 23; Internships, 344										
Brackenridge Hospital +^{1}-x77 15th St. and East Ave., Austin 1	City	200	7,348	Req	33	12	No	150FM	10 Rotating General	70411
Memorial Hospital $^{1-3}$ 2606 Hospital Blvd., Corpus Christi	CyCo	224	8,645	Req	39	12	279	100-125FM	5 Rotating General	70511
Baylor University Hospital +$^{1-3}$-x76 3500 Gaston Ave., Dallas 4	ChurchOpr	600	27,669	Req	37	12	280	90FM	28 Rotating General 1 Straight Medicine 1 Straight Surgery	70611 70632 70633
Children's Medical Center +$^{1-4}$-X76 2306 Welborn St., Dallas 19	NPCorp	154	3,495	Req	59	12	No	50FM	6 Straight Pediatrics	95511
Methodist Hospital +$^{1-3}$-x76 301 W. Colorado Blvd., Dallas 8	ChurchOpr	288	15,425	Req	27	12	No	100FM	12 Rotating General	70711
Parkland Memorial Hospital +$^{1-3-4}$-X76 5201 Harry Hines Blvd., Dallas 19	CyCo	588	10,332	Req	56	12	No	25FM	24 Rotating General 12 Straight Medicine	70811 70832
St. Paul's Hospital +$^{1-3}$-x76 3121 Bryan St., Dallas 1	ChurchRel	440	17,171	Req	50	12	No	100-150FM	14 Rotating General 1 Straight Medicine	70911 70932

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Abbreviations and other references will be found on pages 283 and 284.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships
TEXAS—Continued									
El Paso General Hospital 4815 Alameda Ave., El Paso	CyCo	230	3,466	Req	62	12	No	150FM	8 Rotating General
Hotel Dieu, Sisters' Hospital $^{+1-3}$ 1014 N. Stanton St., El Paso	ChurchRel	201	6,942	Req	33	12	No	150FM	6 Rotating General
Harris Hospital $^{+1-3}$ 1300 W. Cannon St., Fort Worth 4	ChurchOpr	310	15,061	Req	37	12	No	200FM	16 Rotating General
John Peter Smith Hospital $^{+1-3-4}$ 1500 S. Main St., Fort Worth 4	CyCo	200	4,863	Req	43	12	No	50FM	13 Rotating General
St. Joseph's Hospital $^{1-3}$ 1401 S. Main St., Fort Worth 4	ChurchRel	311	12,787	Req	38	12	No	200FM	12 Rotating General
University of Texas Medical Branch Hospitals $^{+1-3}$-X77 8th and Mechanic Sts., Galveston	State	801	12,022	Req	66	12	No	100FM	36 Rotating General
Baylor University College of Medicine Hospitals, Houston									
Jefferson Davis Hospital $^{+1-4}$-X78 1801 Buffalo Dr., Houston 3	CyCo	490	14,359	Req	55	12	281	50FM	30 Rotating General 4 Straight Medicine 4 Straight Surgery 4 Straight Pediatric
Methodist Hospital $^{+1-3}$-X78 6516 Bertner Ave., Houston 25	ChurchOpr	285	13,367	Req	58	12	282	75PM	8 Rotating General 2 StraightMedicine 2 Straight Surgery
Hermann Hospital $^{+1}$-X78 1203 Ross Sterling Ave., Houston 25	NPCorp	625	26,313	Req	42	12	No	75FM	17 Rotating General
St. Joseph's Hospital $^{+}$-x78 1910 Crawford St., Houston 3	ChurchRel	430	24,050	Req	43	12	No	100-200FM	6 Rotating General
Baptist Memorial Hospital $^{+1-3}$-x77 215 Camden St., San Antonio 2	ChurchRel	278	14,777	Req	34	12	No	100-150FM	8 Rotating General
Robert B. Green Memorial Hospital $^{+1-3-4}$-x77 515 Morales St., San Antonio 7	CyCo	311	5,397	Req	44	12	No	100FM	20 Rotating General
Santa Rosa Hospital $^{+1-3}$ 745 W. Houston St., San Antonio 7	ChurchRel	315	13,585	Req	42	12	No	150FM	14 Rotating General
Kings Daughters Hospital $^{+1-3-4}$ 302 S. 22nd St., Temple	NPCorp	110	2,571	Req	25	12	No	150FM	4 Rotating General
Scott and White Memorial Hospitals $^{+1-3-4}$ 213 W. Ave. G, Temple	NPCorp	211	7,361	Req	45	12	283	150FM	12 Rotating General
Providence Hospital $^{1-3}$ 1725 Colcord Ave., Waco	ChurchRel	205	6,121	Req	30	12	No	150FM	4 Rotating General
UTAH—Hospitals, 6; Internships, 65									
St. Benedict's Hospital $^{+1-3}$ 3000 Polk Ave., Ogden	ChurchRel	170	6,018	Req	48	12-24	No	150FM	6 Rotating General
Thomas D. Dee Memorial Hospital $^{+1-3}$ 2440 Harrison Blvd., Ogden	ChurchOpr	220	9,517	Req	43	12	No	150-175PM	12 Rotating General
Dr. W. H. Groves Latter-Day Saints Hosp. $^{+1-3}$ 325 8th Ave., Salt Lake City 3	ChurchOpr	347	17,150	Req	35	12	No	150-175PM	16 Rotating General
Holy Cross Hospital $^{+1-3}$-x79 1045 E. 1st South St., Salt Lake City 2	ChurchRel	189	8,863	Req	57	12	No	150FM	6 Rotating General
St. Mark's Hospital $^{+1-3}$-x79 803 N. 2nd West St., Salt Lake City 3	NPCorp	250	10,115	Req	34	12	No	150FM	6 Rotating General
Salt Lake County General Hospital $^{+1-3}$-X79 2033 S. State St., Salt Lake City 15	County	249	3,972	Req	71	12	284	100FM	12 Rotating General 4 Straight Medicine 3 Straight Pediatric
VERMONT—Hospitals, 2; Internships, 22									
Bishop DeGoesbriand Hospital $^{+1-3}$-X80 1 S. Prospect St., Burlington	ChurchRel	200	5,896	Req	39	12	No	100FM	10 Rotating General
Mary Fletcher Hospital $^{+1-3-4}$-X80 Colchester Ave., Burlington	NPCorp	218	6,950	Req	77	12	No	50FM	12 Rotating General
VIRGINIA—Hospitals, 16; Internships, 172									
Alexandria Hospital $^{+1-3}$ 709 Duke St., Alexandria	NPCorp	189	8,282	Req	37	12	No	125FM	8 Rotating General
University of Virginia Hospital $^{+1-3}$-X81 Charlottesville	State	477	14,419	Req	48	12	285	50FM	12 Rotating General 12 Straight Medicine 8 Straight Surgery
Chesapeake and Ohio Hospital $^{+1-3}$ Ridgeway St., Clifton Forge.	NPCorp	155	6,751	Req	44	12	No	135FM	4 Straight Medicine
Memorial Hospital $^{+1-3}$ 142 S. Main St., Danville	NPCorp	275	8,600	Req	48	12	No	150FM	6 Rotating General
Lynchburg General Hospital $^{+1-3}$ 701 Hollins St., Lynchburg	City	155	6,067	Req	35	12	286	125FM	2 Rotating General
Mary Immaculate Hospital ^{3} Blair and Buxton Aves., Newport News	ChurchRel	150	5,256	Req	42	12	No	150FM	5 Rotating General
Riverside Hospital $^{+1-3}$ 245 50th St., Newport News	NPCorp	212	9,897	None	38	12	No	200FM	4 Rotating General 1 Rot. (Medical Maj 1 Rot. (Surgical Maj 1 Rot. (Ped. Major) 1 Rot. (Ob.-Gyn. Ma
De Paul Hospital $^{+1-3}$ Kingsley Rd. and Granby St., Norfolk 5	ChurchRel	259	11,250	Req	49	12	No	150FM	10 Rotating General
Norfolk General Hospital $^{+1-3}$ Raleigh and Colley Aves., Norfolk 7	NPCorp	316	11,552	Req	64	12	No	100-160FM	12 Rotating General 1 Rot. (Medical Maj 1 Rot. (Surgical Maj 1 Rot. (Ped. Major) 1 Rot. (Ob.-Gyn. Ma

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Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
VIRGINIA—Continued										
ston-Willis Hospital +$^{1-3}$ 908 Kensington Ave., Richmond 21	Corp	225	7,762	Req	52	12	287	200FM	12 Rotating General	74211
ical College of Virginia, Hosp. Div. +$^{1-3-4}$-X82 emorial, Dooley and St. Philip Hospitals) 1200 E. Broad St., Richmond 19	State	885	24,803	Req	39	12	288	50FM	33 Rotating General 2 Straight Medicine 2 Straight Surgery	74311 74332 74333.
rson Hospital +$^{1-3}$ 1313 Franklin Rd., S.W., Roanoke 16	Corp	141	5,632	Req	43	12	No	150FM	4 Mixed (Surg.-Med.-Ob.)	74669
is Gale Hospital +$^{1-3}$ 3rd St. and Luck Ave., S.W., Roanoke 11	Corp	180	6,618	Req	44	12	No	200FM	6 Rotating General	74711
noke Memorial Hospital $^{1-3}$ Belleview and Lake Aves., Roanoke 11	NPCorp	154	4,677	Req	42	12	No	150FM	8 Rotating General	74811
ise Obici Memorial Hospital +$^{1-3}$ Suffolk	NPCorp	151	4,352	Req	37	12	No	175FM	3 Rotating General	92811
chester Memorial Hospital ^{1} S. Stewart St., Winchester	NPCorp	254	7,550	None	40	12	No	100FM	6 Rotating General	74911
WASHINGTON—Hospitals, 12; Internships, 145										
tors Hospital +$^{1-3}$-x83 909 University St., Seattle 1	NPCorp	187	8,651	None	58	12	289	75FM	8 Rotating General	75111
g County Hospital +$^{1-4}$-X83 nit No. 1 (Harborview) 325 9th Ave., Seattle 4	County	475	11,842	Req	67	12	No	75-85FM	30 Rotating General 4 Straight Medicine	75211 75232
vidence Hospital +^{1}-x83 17th and E. Jefferson Sts., Seattle 22	ChurchOpr	355	13,798	Req	57	12	No	140-175FM	16 Rotating General	75311
ttle General Hospital $^{1-3}$ 5th Ave. and Marion St., Seattle 4	NPCorp	116	4,941	Req	41	12	289	150FM	5 Rotating General	75411
dish Hospital +^{1}-x83 803 Summit Ave., Seattle 4	NPCorp	330	14,751	Req	52	12	289	75FM	16 Rotating General	75511
ginia Mason Hospital +$^{1-3}$-x83 1101 Terry Ave., Seattle 1	NPCorp	210	10,060	Req	70	12	289	75FM	10 Rotating General	75611
iconess Hospital +$^{1-3}$ W. 733 4th Ave., Spokane 4	ChurchOpr	200	9,714	Req	50	12	No	200FM	10 Rotating General	75711
red Heart Hospital +$^{1-3}$ 101 8th Ave., Spokane 4	ChurchRel	482	21,356	Req	35	12	No	200FM	12 Rotating General	75811
Luke's Hospital +$^{1-3}$ 830 N. Summit Blvd., Spokane 11	NPCorp	267	7,111	Req	53	12	290	125FM	8 Rotating General	75911
rce County Hospital $^{1-4}$ 3582 Pacific Ave., Tacoma 8	County	220	4,381	Req	36	12	291	200FM	10 Rotating General	76011
Joseph Hospital +$^{1-3}$ 1812 S. Eye St., Tacoma 5	ChurchRel	218	8,262	Req	46	12	No	150FM	6 Rotating General	76111
coma General Hospital +$^{1-3}$ 315 S. K St., Tacoma 5	NPCorp	225	9,943	Req	40	12	No	150-250FM	10 Rotating General	76211
WEST VIRGINIA—Hospitals, 7; Internships, 49										
arleston General Hospital +$^{1-3}$ Brooks St. and Elmwood Ave., Charleston 25	NPCorp	240	8,591	Req	44	12	No	200FM	10 Rotating General	76411
anawha Valley Hospital +$^{1-3}$ 1014 Virginia St., E., Charleston 1	Corp	153	5,040	Req	29	12	No	130FM	4 Rotating General	76511
emorial Hospital +$^{1-3}$ 3200 Noyes Ave., S.E., Charleston	NPCorp	230	9,189	Req	55	12	No	200FM	8 Rotating General	90211
Mary's Hospital +$^{1-3}$ 2900 1st Ave., Huntington 2	ChurchOpr	300	13,391	Req	34	12	No	130-180FM	10 Rotating General	76611
amden-Clark Memorial Hospital +$^{1-3}$ 717 Ann St., Parkersburg	City	160	6,327	Req	28	12	No	150FM	3 Rotating General	76711
t. Joseph's Hospital ^{3} 1801 Market St., Parkersburg	ChurchRel	195	6,946	Req	26	12	No	150FM	4 Rotating General	94411
hio Valley General Hospital +$^{1-3}$ 200 Eoff St., Wheeling	NPCorp	319	10,534	Req	34	12	No	250	10 Rotating General	76911
WISCONSIN—Hospitals, 22; Internships, 220										
uther Hospital $^{1-3}$ 310 Chestnut St., Eau Claire	NPCorp	240	7,209	Req	36	12	No	200FM	6 Rotating General	77111
Mercy Hospital +$^{1-3}$ 566 N. Washington St., Janesville	ChurchRel	196	5,878	None	38	12	No	150FM	5 Rotating General	77311
La Crosse Lutheran Hospital +$^{1-3}$ 1910 South Ave., La Crosse	ChurchRel	200	5,370	Req	51	12	No	150FM	4 Rotating General	77411
St. Francis Hospital $^{1-3}$ 709 S. 10th St., La Crosse	ChurchRel	270	9,842	Req	40	12	No	200FM	8 Rotating General	77511
Madison General Hospital +$^{1-3}$ 925 Mound St., Madison 5	NPCorp	348	9,663	None	54	12	No	127-202FM	12 Rotating General	77611
Methodist Hospital +$^{1-3}$ 309 W. Washington Ave., Madison 3	ChurchRel	143	5,088	Req	48	12	No	150FM	4 Rotating General	77711
St. Mary's Hospital $^{1-3}$ 720 S. Brooks St., Madison 5	ChurchRel	240	9,550	Req	39	12	No	125-200FM	10 Rotating General	77811
University Hospitals +$^{1-3}$-X84 1300 University Ave., Madison 6	State	900	14,543	Req	74	12	292	50FM	25 Rotating General	77911
St. Joseph's Hospital +^{1} 611 St. Joseph's Ave., Marshfield	ChurchOpr	250	9,047	Req	43	12	No	250FM	7 Rotating General	78011
Columbia Hospital +$^{1-3}$ 3321 N. Maryland Ave., Milwaukee 11	NPCorp	250	7,153	Req	64	12	293	170PM	10 Rotating General	78111
Evangelical Deaconess Hospital +$^{1-3}$ 1821 W. Wisconsin Ave., Milwaukee 3	ChurchRel	137	7,143	Req	54	12	294	200FM	8 Rotating General	78211
Milwaukee Children's Hospital +$^{1-3-4}$-x85 721 N. 17th St., Milwaukee 3	NPCorp	160	5,814	Req	83	12	295	125FM	2 Straight Pediatrics	78334

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Abbreviations and other references will be found on pages 283 and 284.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships
WISCONSIN—Continued									
Milwaukee County Hospital +[1-3-4]-X85 8700 W. Wisconsin Ave., Milwaukee 13	County	900	22,839	Req	28	12	No	144PM	40 Rotating General
Milwaukee Hospital +[1-3]-x85 2200 W. Kilborn Ave., Milwaukee 3	ChurchRel	337	10,757	Req	65	12	296	170PM	9 Rotating General
Misericordia Hospital [3] 1255 N. 22nd St., Milwaukee 5	ChurchOpr	175	6,890	Req	47	12	No	200FM	6 Rotating General
Mount Sinai Hospital +[1-3] 908 N. 12th St., Milwaukee 3	NPCorp	184	8,792	Req	40	12	294	200FM	9 Rotating General
St. Joseph's Hospital +[1]-x85 5000 W. Chambers St., Milwaukee 10	ChurchOpr	371	15,192	Req	54	12	No	125FM	16 Rotating General
St. Luke's Hospital +[1-3] 2900 W. Oklahoma Ave., Milwaukee 15	NPCorp	299	12,312	....	44	12	297	200FM	15 Rotating General
St. Mary's Hospital + 2320 N. Lake Dr., Milwaukee 11	ChurchRel	200	8,267	Req	52	12	298	150FM	10 Rotating General
St. Michael Hospital +[1-3] 1845 N. 4th St., Milwaukee 12	ChurchRel	136	5,131	Req	32	12	299	150FM	6 Rotating General
Mercy Hospital [1] 185 Hazel St., Oshkosh	ChurchRel	217	7,113	None	27	12	No	250PM	4 Rotating General
St. Mary's Hospital [1-3] Maple Hill, Wausau	ChurchRel	230	8,967	Req	45	12	300	200FM	4 Rotating General
CANAL ZONE—Hospitals, 1; Internships, 18									
Gorgas Hospital +[1-3] Ancon Personnel Director, Panama Canal Company, Balboa Heights	Fed	467	5,986	Req	85	12	No	3140.80 US citizens (annual) 2516.80 alien citizens (annual)	18 Rotating General
HAWAII—Hospitals, 3; Internships, 30									
Kuakini Hospital [1-3] 347 N. Kuakini St., Honolulu 17	NPCorp	135	6,012	Req	40	12	301	75FM	8 Rotating General
Queen's Hospital +[1-3] 1301 Punchbowl St., Honolulu 9	NPCorp	350	13,805	Req	75	12	No	75FM	13 Rotating General
St. Francis Hospital +[1-3] 2260 Liliha St., Honolulu 17	ChurchRel	226	8,448	Req	51	12	No	75FM	9 Rotating General
PUERTO RICO—Hospitals, 7; Internships, 78									
*Arecibo District Hospital [1-3] Lares Rd., Arecibo	State	298	5,602	Req	73	12	No	75FM	10 Rotating General
*Bayamon District Hospital +[1-3]-x86 Insular Highway No. 2, Bayamon	State	266	6,850	Req	69	12	No	127FM	16 Rotating General
*Fajardo District Hospital [1-3] General Valero Ave., Fajardo	State	298	4,943	Req	53	12	108	75FM	12 Rotating General
*Hospital de Damas [1-3] Concordia St., Ponce	ChurchRel	153	4,966	Req	55	12	No	100FM	6 Rotating General
*Presbyterian Hospital [1-3]-x86 Ashford Ave., San Juan	ChurchRel	130	3,938	Req	27	12	No	50FM	6 Rotating General
*Rio Piedras Municipal Hospital [1-3] Pinero, San Juan	City	196	6,300	Req	28	12	No	75FM	12 Rotating General
*San Juan City Hospital +[1-3]-X86 De Diego Ave., San Juan	City	340	9,126	Req	30	12	No	75FM	16 Rotating General

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HOSPITALS APPROVED FOR INTERNSHIPS IN THE *DOMINION* OF CANADA

The following list of hospitals that conform to the standards of the Canadian Medical Association is published for the information of interested in an internship appointment in a Canadian hospital. Hospitals that are unqualifiedly approved as conforming to the standar Canadian Medical Association may be considered as offering internships equivalent in educational value to those in hospitals approved training by the Council.

This list, revised to Sept. 1, 1955, was furnished by the Canadian Medical Association.

Name of Hospital	Location
St. John's General Hospital	St. John's, Nfld.
Camp Hill Hospital	Halifax, N. S.
Halifax Infirmary	Halifax, N. S.
Victoria General [illegible]	[illegible]
Moncton Hospit[illegible]	[illegible]
Saint John Gene[illegible]	[illegible]
Hotel-Dieu St.-Va[illegible]	[illegible]
Children's Memorial Hospital	Montreal, Que.
Herbert Reddy Memorial Hosp.	Montreal, Que.
Hospital Sainte-Jeanne-d'Arc	Montreal, Que.
Hospital Sainte-Justine	Montreal, Que.
Hospital Saint-Luc	Montreal, Que.
Hotel Dieu de Montreal	Montreal, Que.
Jewish General Hospital	Montreal, Que.
Montreal General Hospital	Montreal, Que.
Notre-Dame Hospital	Montreal, Que.
Queen Elizabeth Hospital	Montreal, Que.
Queen Mary Veteran's Hospital	Montreal, Que.
Royal Victoria Hospital	Montreal, Que.
St. Mary's Hospital	Montreal, Que.
Hospital de l'Enfant Jesus	Quebec, Que.
Jeffery Hale's Hospital	Quebec, Que.
L'Hotel-Dieu, Quebec	Quebec, Que.
Saint-Sacrement Hospital	Quebec, Que.
Veteran's Hospital	Quebec, Que.
Ste. Anne's Hospital	Ste. Anne de Bellevue, Que.

Name of Hospital	Location
Sherbrooke Hospital	Sherbrooke, Que.
Hospital General de Verdun	Verdun, Que.
Brantford General Hospital	Brantford, Ont.
McKellar Ge[illegible]	[illegible] Ont.
Hamilton G[illegible]	Ont.
St. Joseph's [illegible]	Ont.
Hotel Dieu [illegible]	Ont.
Kingston Ge[illegible]	Ont.
Kitchener-W[illegible]	Ont.
St. Joseph's Hospital	London, Ont.
Victoria Hospital	London, Ont.
Westminster Hospital	London, Ont.
Oshawa General Hospital	Oshawa, Ont.
Ottawa Civic Hospital	Ottawa, Ont.
Ottawa General Hospital	Ottawa, Ont.
Peterborough Civic Hosp.	Peterborough, Ont.
General Hosp. of Port Arthur	Port Arthur, Ont.
St. Catharines Gen. Hosp.	St. Catharines, Ont.
Hospital for Sick Children	Toronto, Ont.
Mount Sinai Hospital	Toronto, Ont.
St. Joseph's [illegible]	[illegible] Ont.
St. Michael's [illegible]	Ont.
Sunnybrook [illegible]	Ont.
Toronto Eas[illegible]	Ont.
Toronto General [illegible]	Ont.
Toronto Western [illegible]	Ont.
Women's College [illegible]	Ont.

Name of Hospital	L
Grace Hospital	Win
Hotel Dieu of St. Joseph	Win
Metropolitan Hospital	Win
St. Boniface General Hosp.	St. Boni
Children's H[illegible]	
Deer Lodge [illegible]	
Misericordia [illegible]	
Winnipeg Ge[illegible]	
Regina General Hospital	Reg
Regina Grey Nuns' Hospital	Reg
St. Paul's Hospital	Saskat
Saskatoon City Hospital	Saskat
Calgary General Hospital	Calg
Colonel Belcher Hospital	Calg
Holy Cross Hospital	Calg
Edmonton General Hospital	Edmon
Misericordia Hospital	Edmon
Royal Alexandra Hospital	Edmon
University of Alberta Hospital	Edmon
Royal Columbian Hosp.	New Westmin
St. Paul's Hospital	Vancou
Shaughnessy Hospital	Vancou
Vancouver General Hospital	Vancou
Royal Jubilee Hospital	Victc
St. Joseph's Hospital	Victc
Veterans' Hospital	Victc

ABBREVIATIONS AND NOTES

1. Appointments available to women applicants
2. Appointments restricted to women applicants
3. Appointments available to graduates of foreign medical schools. Details regarding requirements for appointment can be secured from the hospitals concerned.
4. Dental internships available
5. Available to citizens of the United States only
6. General Practice internships

+ The plus sign indicates additional approval for residencies in specialties, as shown in the Council's list of Approved Residencies and Fellowships.

ChurchRel	Church Related
ChurchOpr	Church Operated
CyCo	City and County
Corp	Corporation unrestricted as to profit
NPCorp	Nonprofit corporation
Part	Partnership
Req	Required
FM	Full maintenance
PM	Partial maintenance

Medical School Affiliations

Footnotes 10 to 88 refer to medical schools affiliated with hospitals for undergraduate clinical clerkships.

Hospitals have been identified with symbol X when a medical school has indicated that the hospital is a major unit in the school's teaching program. Hospitals have been identified with symbol x when a medical school has indicated that the hospital is used to a limited extent in the school's teaching rogram.

0. Medical College of Alabama, Birmingham, Ala.
1. University of Arkansas School of Medicine, Little Rock, Ark.
2. College of Medical Evangelists School of Medicine, Loma Linda, Los Angeles, Calif.
3. University of California at Los Angeles School of Medicine, Los Angeles, Calif.
4. University of Southern California School of Medicine, Los Angeles, Calif.
5. Stanford University School of Medicine, San Francisco, Calif.
6. University of California School of Medicine, San Francisco, Calif.
7. University of Colorado School of Medicine, Denver, Colo.
8. Yale University School of Medicine, New Haven, Conn.
9. Georgetown University School of Medicine, Washington, D. C.
0. George Washington University School of Medicine, Washington, D. C.
1. Howard University College of Medicine, Washington, D. C.
2. Emory University School of Medicine, Atlanta (Emory University), Ga.
3. Medical College of Georgia, Augusta, Ga.
4. Chicago Medical School, Chicago, Ill.
25. Northwestern University Medical School, Chicago, Ill.
26. Stritch School of Medicine of Loyola University, Chicago, Ill.
27. University of Chicago, the School of Medicine, Chicago, Ill.
28. University of Illinois College of Medicine, Chicago, Ill.
29. Indiana University School of Medicine, Bloomington-Indianapolis, Ind.
30. State University of Iowa College of Medicine, Iowa City, Iowa
31. University of Kansas School of Medicine, Lawrence-Kansas City, Kan.
32. University of Louisville School of Medicine, Louisville, Ky.
33. Louisiana State University School of Medicine, New Orleans, La.
34. Tulane University of Louisiana School of Medicine, New Orleans, La.
35. Johns Hopkins University School of Medicine, Baltimore, Md.
36. University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, Md.
37. Boston University School of Medicine, Boston, Mass.
38. Harvard Medical School, Boston, Mass.
39. Tufts College Medical School, Boston, Mass.
40. University of Michigan Medical School, Ann Arbor, Mich.
41. Wayne University College of Medicine, Detroit, Mich.
42. University of Minnesota Medical School, Minneapolis, Minn.
43. St. Louis University School of Medicine, St. Louis, Mo.
44. Washington University School of Medicine, St. Louis, Mo.
45. Creighton University School of Medicine, Omaha, Neb.
46. University of Nebraska College of Medicine, Omaha, Neb.
47. Dartmouth Medical School, Hanover, N. H.
48. Albany Medical College, Albany, N. Y.
49. University of Buffalo School of Medicine, Buffalo, N. Y.
50. Columbia University College of Physicians and Surgeons, New York, N. Y.
51. Cornell University Medical College, New York, N. Y.
52. New York Medical College, Flower and Fifth Avenue Hospitals, New York, N. Y.
53. New York University College of Medicine, New York, N. Y.
54. State University of New York College of Medicine, New York, N. Y.
55. University of Rochester School of Medicine and Dentistry, Rochester, N. Y.
56. State University of New York Upstate Medical Center, Syracuse, N. Y.
57. University of North Carolina School of Medicine, Chapel Hill, N. C.
58. Duke University School of Medicine, Durham, N. C.
59. Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C.
60. University of Cincinnati College of Medicine, Cincinnati, Ohio
61. Western Reserve University School of Medicine, Cleveland, Ohio
62. Ohio State University College of Medicine, Columbus, Ohio
63. University of Oklahoma School of Medicine, Oklahoma City, Okla.
64. University of Oregon Medical School, Portland, Ore.
65. Hahnemann Medical College and Hospital, Philadelphia, Pa.
66. Jefferson Medical College, Philadelphia, Pa.
67. Temple University School of Medicine, Philadelphia, Pa.
68. University of Pennsylvania School of Medicine, Philadelphia, Pa.
69. Woman's Medical College of Pennsylvania, Philadelphia, Pa.
70. University of Pittsburgh School of Medicine, Pittsburgh, Pa.
71. Medical College of the State of South Carolina, Charleston, S. C.
72. University of South Dakota School of Medicine, Vermillion, S. D.
73. University of Tennessee College of Medicine, Memphis, Tenn.
74. Meharry Medical College, Nashville, Tenn.
75. Vanderbilt University School of Medicine, Nashville, Tenn.
76. Southwestern Medical School of the University of Texas, Dallas, Texas
77. University of Texas School of Medicine, Galveston, Texas
78. Baylor University College of Medicine, Houston, Texas
79. University of Utah School of Medicine, Salt Lake City, Utah
80. University of Vermont College of Medicine, Burlington, Vt.
81. University of Virginia School of Medicine, Charlottesville, Va.
82. Medical College of Virginia, Richmond, Va.
83. University of Washington School of Medicine, Seattle, Wash.
84. University of Wisconsin Medical School, Madison, Wis.
85. Marquette University School of Medicine, Milwaukee, Wis.
86. University of Puerto Rico School of Medicine, San Juan, Puerto Rico
87. University of Miami School of Medicine, Miami, Fla.
88. Albert Einstein College of Medicine, New York, N. Y.

Affiliations as Referred to in Column Headed: "Affiliated Service"

100. Presbyterian Hospital, Philadelphia; U. S. Army Hospital, Fort Dix, N. J.
101. St. Joseph's Hospital, Children's Hospital, San Francisco
102. Charity Hospital of Louisiana, New Orleans
103. University Hospital, Baltimore
104. Misericordia Hospital, Lenox Hill Hospital, St. Vincent's Hospital, New York City; Jewish Hospital, Brooklyn, N. Y.; St. Michael's Hospital, Newark, N. J.; Jersey City Medical Center, Jersey City, N. J.
105. U. S. Naval Hospital, Portsmouth, Va.
106. Children's Orthopedic Hospital, Seattle, pediatrics; U. S. Army Hospital, Seattle, obstetrics-gynecology
107. District of Columbia General Hospital, Washington, D. C.
108. Bayamon District Hospital, Bayamon, P. R.
109. Los Angeles County Hospital, Los Angeles, obstetrics; Harbor General Hospital, Torrence, Calif., pediatrics
110. Los Angeles County Hospital, Los Angeles; St. John's Hospital, Santa Monica, Calif.
111. Emory University Hospital, Emory University, Ga.; Grady Memorial Hospital, Atlanta, Ga.
112. University of Oklahoma Hospitals, Mercy Hospital, Oklahoma City
113. Children's Hospital, Baylor University Hospital, Dallas, Texas
114. Jefferson Davis Hospital, Houston, Texas
115. Parkland Memorial Hospital, Children's Medical Center, Dallas, Texas
116. Salt Lake County General Hospital, Salt Lake City
117. Children's Hospital, Birmingham, Ala.
118. Crippled Children's Clinic and Hospital, Children's Hospital, Birmingham, Ala., pediatrics
119. Maricopa County General Hospital, Phoenix, Ariz.
120. Pima County General Hospital, Tucson, Ariz.
121. Arkansas Children's Home and Hospital, Little Rock, Ark., pediatrics
122. Veterans Administration Hospital, Little Rock, Ark.
123. Riverside Community Hospital, Riverside, Calif.
124. Los Angeles County Hospital, Los Angeles
125. Santa Monica Hospital, Santa Monica, Calif.
126. Presbyterian Hospital-Olmsted Memorial, Los Angeles, obstetrics
127. Childrens Hospital, Los Angeles
128. Fairmont Hospital of Alameda County, San Leandro, Calif.
129. Kaiser Foundation Hospital, San Francisco
130. Woman's Hospital, Pasadena, Calif.
131. U. S. Naval Hospital, San Diego, Calif., obstetrics, pediatrics
132. Laguna Honda Home, San Francisco; Hassler Health Home, Redwood City, Calif.
133. St. Luke's Hospital, Mary's Help Hospital, Children's Hospital, San Francisco; Southern Pacific Hospital and Sanatorium, Tucson, Ariz.
134. Children's Hospital, San Francisco
135. Santa Barbara General Hospital, Santa Barbara, Calif.
136. University of California Hospital at Los Angeles, pediatrics
137. California Hospital, Los Angeles
138. County of Boulder General Hospital, Boulder, Colo.; Childrens Hospital, Denver
139. Childrens Hospital, Denver
140. St. Luke's Hospital, General Rose Memorial Hospital, Presbyterian Hospital, St. Joseph's Hospital, Denver
141. Hartford Hospital, Hartford, Conn.
142. Southbury Training School, Southbury, Conn., pediatrics
143. St. Luke's Hospital, Brewster Hospital, Jacksonville, Fla.

144. Variety Children's Hospital, Miami, Fla.
145. American Legion Hospital for Crippled Children, St. Petersburg, Fla.
146. St. Mary's Hospital, Athens, Ga.
147. Grady Memorial Hospital, Atlanta, Ga.
148. District of Columbia General Hospital, Children's Hospital, Washington, D. C.
149. Central Dispensary and Emergency Hospital, Children's Hospital, Washington, D. C.
150. Children's Hospital, Washington, D. C., pediatrics
151. Arlington Hospital, Arlington, Va.
152. District of Columbia General Hospital, Washington, D. C., pediatrics
153. Holy Cross Hospital, Chicago; Alexian Brothers Hospital, St. Louis
154. Children's Memorial Hospital, Chicago Maternity Center, Chicago
155. Frank Cuneo Memorial Hospital, Chicago
156. Children's Memorial Hospital, Chicago, pediatrics
157. Women and Children's Hospital, Chicago
158. Lewis Memorial Maternity Hospital, Chicago, obstetrics
159. Mercy Hospital, Chicago
160. Winfield Hospital, Winfield, Ill.
161. Presbyterian Hospital, Municipal Contagious Disease Hospital, Chicago
162. Municipal Contagious Disease Hospital, Chicago
163. Macon County Tuberculosis Sanatorium, City Public Hospital, Decatur, Ill.
164. Indianapolis General Hospital, Indianapolis
165. Healthwin Hospital, South Bend, Ind., tuberculosis
166. Northern Indiana Children's Hospital, South Bend, Ind.
167. Broadlawns Polk County Hospital, Des Moines, Iowa
168. Children's Mercy Hospital, Kansas City, Mo.
169. Sedgwick County Hospital, Wichita, Kan.
170. Childrens Hospital, Louisville, Ky.
171. Jewish Hospital, Childrens Hospital, Louisville, Ky.
172. Louisville General Hospital, Louisville, Ky,
173. St. Joseph Infirmary, Louisville, Ky.
174. Greenwell Springs Tuberculosis Hospital, Greenwell Springs, La.
175. Confederate Memorial Medical Center, Shreveport, La.
176. Union Memorial Hospital, Baltimore
177. Harford Memorial Hospital, Havre de Grace, Md.
178. Johns Hopkins Hospital, Baltimore
179. Children's Hospital, Washington, D. C.
180. Charles V Chapin Hospital, Providence, R. I.
181. St. Margaret's Hospital, Boston
182. Beth Israel Hospital, Boston
183. Haynes Memorial Hospital, Boston
184. Eastern Maine General Hospital, Bangor, Maine; Central Maine General Hospital, Lewiston, Maine; Boston Floating Hospital, Boston
185. Boston Floating Hospital, Boston
186. Robert Breck Brigham Hospital, Boston
187. Boston Lying-in Hospital, Boston
188. Fall River General Hospital, Fall River, Mass.
189. Wesson Maternity Hospital, Springfield, Mass.
190. Cooley Dickinson Hospital, Northampton, Mass.
191. Hurley Hospital, McLaren General Hospital, Flint, Mich.; Beyer Memorial Hospital, Ypsilanti, Mich.; Midland Hospital, Midland, Mich.; Saginaw General Hospital, Saginaw, Mich.
192. Herman Kiefer Hospital, Detroit; Wayne County General Hospital and Infirmary, Eloise, Mich.
193. Receiving Hospital, Children's Hospital, Detroit
194. Harper Hospital, Detroit
195. Herman Kiefer Hospital, Detroit; St. Joseph's Retreat, Dearborn, Mich.
196. Herman Kiefer Hospital, Detroit
197. Children's Hospital, Detroit
198. Woman's Hospital, Herman Kiefer Hospital, Detroit
199. Hurley Hospital, Genesee County Tuberculosis Sanatorium, Flint, Mich.
200. Evangeline Home and Hospital, Grand Rapids, Mich.
201. Ingham Sanatorium, Lansing, Mich., tuberculosis
202. Pontiac State Hospital, Oakland County Tuberculosis Sanatorium, Pontiac, Mich.; Haven Sanitarium, Rochester, Mich.
203. Saginaw County Hospital, Saginaw, Mich., tuberculosis, communicable diseases
204. Miller Memorial Hospital, Duluth, Minn.
205. St. Andrew's Hospital, Minneapolis
206. Minneapolis General Hospital, Minneapolis
207. Children's Hospital, St. Paul; Elizabeth Kenny Institute, Minneapolis
208. Children's Hospital, St. Paul
209. Ancker Hospital, Charles T. Miller Hospital, St. Paul
210. Mississippi State Charity Hospital, Vicksburg, Miss.
211. Children's Mercy Hospital, Kansas City, Mo.
212. St. Louis City Hospital, St. Louis Children's Hospital, St. Louis
213. St. Mary's Infirmary, St. Louis
214. St. Louis Children's Hospital, St. Louis
215. Alexian Brothers Hospital, St. Vincent's Hospital, St. Louis
216. St. Louis Maternity Hospital, St. Louis; St. Louis County Hospital, Clayton, Mo.; Burge Hospital, Springfield, Mo.
217. St. Louis City Hospital, St. Louis
218. Children's Memorial Hospital, Douglas County Hospital, Immanuel Hospital, Omaha
219. Douglas County Hospital, Omaha
220. Children's Memorial Hospital, Bishop Clarkson Memorial Hospital, Douglas County Hospital, Omaha
221. Children's Memorial Hospital, Omaha
222. Douglas County Hospital, Omaha, emergency; St. Bernard's Hospital, Council Bluffs, Iowa, psychiatry
223. Children's Memorial Hospital, Douglas County Hospital, Omaha
224. Children's Seashore Home, Clyde Fish Memorial Hospital, Municipal Hospital, Atlantic City, N. J.; Betty Bacharach Home, Longport, N. J.
225. Jersey City Medical Center, Jersey City, N. J.
226. St. Elizabeth Hospital, Elizabeth, N. J., obstetrics, pediatric
227. Margaret Hague Maternity Hospital, Jersey City, N. J.
228. New Jersey State Hospital, Greystone Park, N. J.; Shonghum tain Sanatorium, Morristown, N. J.; Children's Heart Victoria Foundation, Morris Plains, N. J.
229. A. N. Brady Hospital, Albany, N. Y., obstetrics
230. Kingston Avenue Hospital, Brooklyn, N. Y., communicable dis
231. Children's Hospital, Buffalo
232. Children's Hospital, Edward J. Meyer Memorial Hospital, Buffal
233. Kenmore Mercy Hospital, Buffalo
234. Chemung County Tuberculosis Sanatorium, Elmira, N. Y.
235. Memorial Hospital, New York City
236. University Hospital, New York City
237. Roosevelt Hospital, New York City
238. Jewish Hospital, Brooklyn, N. Y.
239. Lincoln Hospital, New York City, obstetrics
240. Hunterdon Medical Center, Flemington, N. J.
241. Edward J. Meyer Memorial Hospital, Buffalo
242. Strong Memorial Hospital, Rochester, N. Y.
243. Geneva General Hospital, Geneva, N. Y.
244. Genesee Hospital, Highland Hospital, Rochester, N. Y.
245. Asheville Orthopedic Hospital, Asheville, N. C.
246. Watts Hospital, Durham, N. C.; Robeson County Memorial Ho Lumberton, N. C.
247. Watts Hospital, Veterans Administration Hospital, Durham,
248. Children's Hospital, Akron, Ohio, pediatrics
249. Children's Hospital, Cincinnati
250. Daniel Drake Memorial Hospital, Dunham Hospital, Cincinnat
251. Good Samaritan Hospital, Cincinnati
252. Cincinnati General Hospital, Cincinnati
253. City Hospital, Cleveland
254. St. Ann Hospital, Cleveland
255. Children's Hospital, Columbus, Ohio
256. St. Francis Hospital, Columbus Receiving Hospital, Ohio Tuber Hospital, Children's Hospital, Columbus, Ohio
257. Lima State Hospital, Lima, Ohio
258. University Hospitals, Columbus, Ohio
259. Toledo State Hospital, William W. Roche Memorial Hospital, Ohio
260. University of Oklahoma Hospitals, Oklahoma City
261. St. Vincent's Hospital, Portland, Ore.
262. Providence Hospital, Portland, Ore.
263. Hospital of the University of Pennsylvania, Philadelphia
264. Hospital of the Woman's Medical College, Philadelphia Psyc Hospital, Philadelphia
265. Philadelphia State Hospital, Philadelphia
266. Children's Hospital, Philadelphia, pediatrics
267. St. Christopher's Hospital for Children, Philadelphia, pediat
268. Elizabeth Steel Magee Hospital, Children's Hospital, Eye an Hospital, Woman's Hospital, Pittsburgh
269. Wernersville State Hospital, Wernersville, Pa.; Berks Coun berculosis Sanatorium, Reading, Pa.
270. St. Francis Hospital, Pittsburgh, psychiatry
271. U. S. Naval Hospital, Newport, R. I., pediatrics, obstetrics, out service
272. Charles V. Chapin Hospital, Providence Lying-In Hospital, dence, R. I.
273. Charles V. Chapin Hospital, Providence, R. I.
274. Veterans Administration Center, Sioux Falls, S. D.
275. Knoxville General Hospital, Knoxville, Tenn.
276. Knoxville General Hospital, East Tennessee Crippled Children pital, Knoxville, Tenn.
277. John Gaston Hospital. Le Bonheur Children's Hospital, Me Tenn.
278. West Tennessee Tuberculosis Hospital, Memphis Eye, Ear, No Throat Hospital, Memphis, Tenn.
279. Driscoll Foundation Children's Hospital, Corpus Christi, Texa
280. Children's Medical Center, Dallas, Texas
281. Methodist Hospital, Texas Children's Hospital, Houston, *straight internships in pediatrics*
282. Jefferson Davis Hospital, Texas Children's Hospital, Houston,
283. Gulf, Colorado and Santa Fe Hospital, Temple, Texas
284. Veterans Administration Hospital, Salt Lake City
285. Blue Ridge Sanatorium, Charlottesville, Va.; Kings Daughter pital, Staunton, Va., Lynchburg General Hospital, Lynchbur
286. University of Virginia Hospital, Charlottesville, Va.
287. Medical College of Virginia Hospitals, Richmond, Va.
288. St. Elizabeth's Hospital, St. Luke's Hospital, Stuart Circle Ho Richmond, Va.; Northampton-A Hospital sawadox, Va.; Martha Washingt Southside Community Hospital, Hospital, Franklin, Va.
289. Children's Orthopedic Hospital, Seattle.
290. Shriners Hospital for Crippled Children, Spokane, ortho Booth Memorial Hospital, Spokane, obstetrics-gynecology
291. Mountain View Sanatorium, Tacoma, Wash., tuberculosis
292. Chicago Maternity Center, Chicago
293. Milwaukee Children's Hospital, South View Hospital, Milwauk
294. Milwaukee Children's Hospital, Milwaukee
295. Milwaukee Hospital, South View Hospital, Milwaukee
296. Milwaukee Children's Hospital, South View Hospital, Salvation Martha Washington Women's Home and Hospital, Milwauke
297. Milwaukee Children's Hospital, Milwaukee County Hospital waukee
298. Milwaukee Children's Hospital, Milwaukee County Emergency pital, Milwaukee
299. South View Hospital, Milwaukee, communicable diseases
300. Marathon County General Hospital, Mount View Sanatorium, sau, Wis.
301. St. Francis Hospital, Honolulu, Hawaii

APPROVED INTERNSHIPS BY TYPE OF SERVICE

ROTATING GENERAL

Number of Approved Programs, 814

FEDERAL

UNITED STATES ARMY

tterman Army Hospital	San Francisco
tzsimons Army	[illegible]
alter Reed Army	[illegible]
lley Forge Arr	[illegible]
illiam Beaumont Army Hospital	El Paso, Texas
ooke Army Hospital, Fort Sam Houston	San Antonio, Texas
adigan Army Hospital	Tacoma, Wash.
ipler Army Hospital	Honolulu, T. H.

UNITED STATES NAVY

S. Naval Hospital	Corona, Calif.
.S. Naval Hospital	Oakland, Calif.
S. Naval Hospital	Oceanside, Calif.
.S. Naval Hospital	San Diego, Calif.
S. Naval Hospital	Jacksonville, Fla.
S. Naval Hospital	Pensacola, Fla.
S. Naval Hospital	Great Lakes, Ill.
[illegible]	Bethesda, Md.
[illegible]	Chelsea, Mass.
[illegible]	Albans, N. Y.
.S. Naval Hospital	Philadelphia
.S. Naval Hospital	Newport, R. I.
.S. Naval Hospital	Charleston, S. C.
.S. Naval Hospital	Portsmouth, Va.
.S. Naval Hospital	Bremerton, Wash.

U. S. PUBLIC HEALTH SERVICE

.S. Public Health Service Hospital	San Francisco
.S. Public Health Service Hospital	New Orleans
.S. Public Health Service Hospital	Baltimore
.S. Public Health Service Hospital	Staten Island, N. Y.
.S. Public Health Service Hospital	Norfolk, Va.
.S. Public Health Service Hospital	Seattle

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

reedmen's Hospital	Washington, D. C.
aint Elizabeths Hospital	Washington, D. C.

VETERANS ADMINISTRATION

eterans Admin. Hospital	Long Beach, Calif
eterans Admin. Center	Los Angeles
eterans Admin. Hospital	Houston, Texas
eterans Admin. Hospital	Salt Lake City

NONFEDERAL

irmingham Baptist Hospital	Birmingham, Ala.
arraway Methodist Hospital	Birmingham, Ala.
St. Vincent's Hospital	Birmingham, Ala.
outh Highlands Infirmary	Birmingham, Ala.
University Hospital and Hillman Clinic	Birmingham, Ala.
Lloyd Noland Hospital	Fairfield, Ala.
Holy Name of Jesus Hospital	Gadsden, Ala.
City Hospital	Mobile, Ala.
Druid City Hospital	Tuscaloosa, Ala.
Good Samaritan Hospital	Phoenix, Ariz.
Maricopa County General Hospital	Phoenix, Ariz.
Memorial Hospital	Phoenix, Ariz.
St. Joseph's Hospital	Phoenix, Ariz.
St. Mary's Hospital and Sanatorium	Tucson, Ariz.
Tucson Medical Center	Tucson, Ariz.
Arkansas Baptist Hospital	Little Rock, Ark.
St. Vincent's Infirmary	Little Rock, Ark.
University Hospital	Little Rock, Ark.
General Hospital of Riverside County	Arlington, Calif.
Herrick Memorial Hospital	Berkeley, Calif.
San Joaquin General Hospital	French Camp, Calif.
Fresno General Hospital	Fresno, Calif.
Glendale Sanitarium and Hospital	Glendale, Calif.
Loma Linda Sanitarium and Hospital	Loma Linda, Calif.
St. Mary's Long Beach Hospital	Long Beach, Calif.
Seaside Memorial Hospital	Long Beach, Calif.
California Hospital	Los Angeles
Cedars of Lebanon Hospital	Los Angeles
Hospital of the Good Samaritan	Los Angeles
Los Angeles County Hospital	Los Angeles
Methodist Hospital of Southern California	Los Angeles
Presbyterian Hospital-Olmsted Memorial	Los Angeles
Queen of Angels Hospital	Los Angeles
Santa Fe Coast Lines Hospital	Los Angeles
White Memorial H	Los Angeles
Highland-Alameda	Calif.
Kaiser Foundatior	Calif.
Orange County G	Calif.
Collis P. and Hov	Calif.
Sacramento Coun	Calif.
San Bernardino County Charity Hospital	San Bernardino, Calif.
Mercy Hospital	San Diego, Calif.

NONFEDERAL—Continued

San Diego County General Hospital	San Diego, Calif.
Children's Hospital	San Francisco
Franklin Hospital	San Francisco
French Hospital	San Francisco
Mary's Help Hospital	San Francisco
Mount Zion Hospital	San Francisco
St. Joseph's Hospital	San Francisco
St. Luke's	San Francisco
St. Mary's	San Francisco
San Francis	San Francisco
Southern Pr	San Francisco
University of Californ	San Francisco
Santa Clara County	Calif.
Santa Barbara Cott	Calif.
St. John's Hospital	Santa Monica, Calif.
Santa Monica Hospital	Santa Monica, Calif.
Harbor General Hospital	Torrance, Calif.
Glockner-Penrose Hospital	Colorado Springs, Colo.
General Rose Memorial Hospital	Denver
Mercy Hospital	Denver
Porter Sanitarium and Hospital	Denver
Presbyterian Hospital	Denver
St. Anthony Hospital	Denver
St. Joseph's	Denver
St. Luke's	Denver
University	
Colorado General Hospital	Denver
Denver General Hospital	Denver
Weld County General Hospital	Greeley, Colo.
Bridgeport Hospital	Bridgeport, Conn.
St. Vincent's Hospital	Bridgeport, Conn.
Bristol Hospital	Bristol, Conn.
Danbury Hospital	Danbury, Conn.
Greenwich Hospital	Greenwich, Conn.
Hartford Hospital	Hartford, Conn.
Hartford Municipal Hospital and Health Center	Hartford, Conn.
Mount Sinai Hospital	Hartford, Conn.
St. Francis Hospital	Hartford, Conn.
Manchester Memorial Hospital	Manchester, Conn.
Meriden Hospital	Meriden, Conn.
Middlesex Memorial Hospital	Middletown, Conn.
New Britain General Hospital	New Britain, Conn.
Hospital of St. Raphael	New Haven, Conn.
Lawrence and Memorial Associated Hospitals	New London, Conn.
Norwalk Hospital	Norwalk, Conn.
William W. Backus Hospital	Norwich, Conn.
Stamford Hospital	Stamford, Conn.
St. Mary's Hospital	Waterbury, Conn.
Waterbury Hospital	Waterbury, Conn.
Delaware Hospital	Wilmington, Del.
Memorial Hospital	Wilmington, Del.
Wilmington General Hospital	Wilmington, Del.
Central Dispensary and Emergency Hospital	Washington, D. C.
District of Columbia General Hospital	Washington, D. C.
Doctors Hospital	Washington, D. C.
[illegible]	Washington, D. C.
[illegible]	Washington, D. C.
[illegible]	Washington, D. C.
[illegible]	Washington, D. C.
[illegible]	Jacksonville, Fla.
St. Luke's Hospital	Jacksonville, Fla.
St. Vincent's Hospital	Jacksonville, Fla.
Jackson Memorial Hospital	Miami, Fla.
Mount Sinai Hospital	Miami Beach, Fla.
St. Fra	Miami Beach, Fla.
Orange	Orlando, Fla.
Sacred	Pensacola, Fla.
Mound	[illegible]
Tampa	[illegible]
St. Mar	[illegible]
Athens General Hospital	Athens, Ga.
St. Mary's Hospital	Athens, Ga.
Crawford W. Long Memorial Hospital	Atlanta, Ga.
Georgia Baptist Hospital	Atlanta, Ga.
Grady Memorial Hospital	Atlanta, Ga.
Piedmont Hospital	Atlanta, Ga.
St. Joseph's Infirmary	Atlanta, Ga.
University Hospital	Augusta, Ga.
[illegible]	Columbus, Ga.
[illegible]	Macon, Ga.
[illegible]	Berwyn, Ill.
[illegible]	Blue Island, Ill.
[illegible]	Chicago
American Hospital	Chicago
Augustana Hospital	Chicago
Chicago Wesley Memorial Hospital	Chicago
Columbus Hospital	Chicago
Cook County Hospital	Chicago
Edgewater Hospital	Chicago
Englewood Hospital	Chicago
Evangelical Hospital	Chicago
Garfield Park Community Hospital	Chicago
[illegible]	Chicago
[illegible]	Chicago
[illegible]	Chicago
[illegible]	Chicago
Illinois Central Hospital	Chicago
Illinois Masonic Hospital	Chicago
Jackson Park Hospital	Chicago

NONFEDERAL—Continued

Loretto Hospital	Chicago
Lutheran Deaconess Home and Hospital	Chicago
Mercy Hospital	Chicago
Michael Reese Hospital	Chicago
Mother Cabrini Memorial Hospital	Chicago
Mount Sinai Hospital	Chicago
Norwegian-American Hospital	Chicago
Passavant Memorial Hospital	Chicago
Presbyterian Hospital	Chicago
Provident Hospital	Chicago
Ravenswood Hospital	Chicago
Resurrection Hospital	Chicago
Roseland Community Hospital	Chicago
St. Anne's Hospital	Chicago
St. Bernard's Hospital	Chicago
St. Elizabeth Hospital	Chicago
St. Joseph Hospital	Chicago
St. Luke's Hospital	Chicago
St. Mary of Nazareth Hospital	Chicago
South Chicago Community Hospital	Chicago
South Shore Hospital	Chicago
Swedish Covenant Hospital	Chicago
University of Chicago Clinics	Chicago
University of Illinois Research and Educational Hospitals	Chicago
Walther Memorial Hospital	Chicago
Women and Children's Hospital	Chicago
Woodlawn Hospital	Chicago
Decatur and Macon County Hospital	Decatur, Ill.
St. Mary's Hospital	East St. Louis, Ill.
Memorial Hospital of DuPage County	Elmhurst, Ill.
Evanston Hospital	Evanston, Ill.
St. Francis Hospital	Evanston, Ill.
Little Company of Mary Hospital	Evergreen Park, Ill.
Moline Public Hospital	Moline, Ill.
Oak Park Hospital	Oak Park, Ill.
West Suburban Hospital	Oak Park, Ill.
Methodist Hospital of Central Illinois	Peoria, Ill.
St. Francis Hospital	Peoria, Ill.
Rockford Memorial Hospital	Rockford, Ill.
St. Anthony's Hospital	Rockford, Ill.
Swedish-American Hospital	Rockford, Ill.
Memorial Hosptial	Springfield, Ill.
St. Catherine Hospital	East Chicago, Ind.
Protestant Deaconess Hospital	Evansville, Ind.
St. Mary's Hospital	Evansville, Ind.
Lutheran Hospital	Fort Wayne, Ind.
Parkview Memorial Hospital	Fort Wayne, Ind.
St. Joseph Hospital	Fort Wayne, Ind.
Methodist Hospital	Gary, Ind.
St. Mary's Mercy Hospital	Gary, Ind.
St. Margaret Hospital	Hammond, Ind.
Indianapolis General Hospital	Indianapolis
Indiana University Medical Center	Indianapolis
Methodist Hospital	Indianapolis
St. Vincent's Hospital	Indianapolis
St. Elizabeth Hospital	Lafayette, Ind.
Ball Memorial Hospital	Muncie, Ind.
Memorial Hospital	South Bend, Ind.
St. Joseph's Hospital	South Bend, Ind.
Mercy Hospital	Cedar Rapids, Iowa
St. Luke's Methodist Hospital	Cedar Rapids, Iowa
Mercy Hospital	Council Bluffs, Iowa
Mercy Hospital	Davenport, Iowa
Broadlawns Polk County Hospital	Des Moines, Iowa
Iowa Lutheran Hosptal	Des Moines, Iowa
Iowa Methodist Hospital	Des Moines, Iowa
Mercy Hospital	Des Moines, Iowa
Mercy Hospital	Iowa City
University Hospitals	Iowa City
St. Joseph Mercy Hospital	Sioux City, Iowa
Bethany Hospital	Kansas City, Kan.
Providence Hospital	Kansas City, Kan.
St. Margaret's Hospital	Kansas City, Kan.
University of Kansas Medical Center	Kansas City, Kan.
St. Francis Hospital	Wichita, Kan.
Wesley Hospital	Wichita, Kan.
Wichita-St. Joseph Hospital	Wichita, Kan.
St. Elizabeth Hospital	Covington, Ky.
Good Samaritan Hospital	Lexington, Ky.
St. Joseph Hospital	Lexington, Ky.
Kentucky Baptist Hospital	Louisville, Ky.
Louisville General Hospital	Louisville, Ky.
Norton Memorial Infirmary	Louisville, Ky.
St. Anthony Hospital	Louisville, Ky.
St. Joseph Infirmary	Louisville, Ky.
Baton Rouge General Hospital	Baton Rouge, La.
Charity Hospital of Louisiana	New Orleans
Hotel Dieu, Sisters' Hospital	New Orleans
Mercy Hospital	New Orleans
Southern Baptist Hospital	New Orleans
Touro Infirmary	New Orleans
Confederate Memorial Medical Center	Shreveport, La.
North Louisiana Sanitarium	Shreveport, La.
Eastern Maine General Hospital	Bangor, Maine
Central Maine General Hospital	Lewiston, Maine
St. Mary's General Hospital	Lewiston, Maine
Maine General Hospital	Portland, Maine
Baltimore City Hospitals	Baltimore
Bon Secours Hospital	Baltimore
Church Home and Hospital	Baltimore
Franklin Square Hospital	Baltimore
Lutheran Hospital	Baltimore
Maryland General Hospital	Baltimore
Mercy Hospital	Baltimore
Provident Hospital and Free Dispensary	Baltimore
St. Agnes Hospital	Baltimore
St. Joseph's Hospital	Baltimore
Sinai Hospital	Baltimore

NONFEDERAL—Continued

South Baltimore General Hospital	Balt
Union Memorial Hospital	Balt
University Hospital	Balt
Suburban Hospital	Bethesda,
Prince George's General Hospital	Cheverly,
Washington County Hospital	Hagerstown,
Beverly Hospital	Beverly,
Carney Hospit	
New England	
St. Elizabeth's	
Brockton Hosp	
Cambridge City	
Mount Auburn	
Truesdale Hospit	
Union Hospital	
Holyoke Hospital	Holyoke,
Lawrence General Hospital	Lawrence,
Lowell General Hospital	Lowell,
St. John's Hospital	Lowell,
St. Joseph's Hospital	Lowell,
Lynn Hospital	Lynn,
St. Luke's Hospital	New Bedford,
Newton-Wellesley Hospital	Newton Lower Falls,
St. Luke's Hospital	Pittsfield,
Quincy City Hospital	Quincy,
Salem Hospital	Salem,
Mercy Hospital	Springfield,
Springfield, Hospital	Springfield,
Wesson Memorial Hospital	Springfield,
Waltham Hospital	Waltham,
Memorial Hospital	Worcester,
St. Vincent Hospital	Worcester,
Worcester City Hospital	Worcester,
St. Joseph's Mercy	
Leila Y. Post Mon	
Oakwood Hospital	
Detroit Memorial Hospital	D
Evangelical Deaconess Hospital	D
Grace Hospital	D
Harper Hospital	D
Henry Ford Hosptal	D
Mount Carmel Mercy Hospital	D
Providence Hospital	D
Receiving Hospital	D
St. John Hospital	D
St. Joseph Mercy Hospital	D
Sinai Hospital	D
Woman's Hospital	D
Wayne County General Hospital and Infirmary	Eloise,
Hurley Hospital	Flint,
McLaren General Hospital	Flint,
St. Joseph Hospital	Flint,
Blodgett Memorial Hospital	Grand Rapids,
Butterworth Hospital	Grand Rapids,
St. Mary's Hospital	Grand Rapids,
Bon Secours Hospital	Grosse Pointe,
Highland Park General Hospital	Highland Park,
Borgess Hospital	Kalamazoo,
Bronson Methodist Hospital	Kalamazoo,
Edward W. Sparrow Hospital	Lansing,
St. Lawrence Hospital	Lansing,
Pontiac General Hospital	Pontiac,
St. Joseph Mercy Hospital	Pontiac,
Saginaw General Hospital	Saginaw,
St. Luke's Hospital	Saginaw,
St. Mary's Hospital	Saginaw,
James Decker Munson Hospital	Traverse City,
St. Luke's Hospital	Duluth,
St. Mary's Hospital	Duluth,
Minneapolis General Hospital	Minne
Mount Sinai Hospital	Minne
Northwestern Hospital	Minne
St. Barnabas Hospital	Minne
St. Mary's Hospital	Minne
Swedish Hospital	Minne
University of Minnesota Hospitals	Minne
Ancker Hospital	St
Charles T. Miller Hospital	St
St. Joseph's Hospital	St
St. Luke's Hospital	St
Mississippi Baptist Hospital	Jackson
Mercy Hospital-Street Memorial	Vicksburg
St. Louis County Hospital	Clayto
Kansas City General Hospital No. 1	Kansas Cit
Kansas City General Hospital No. 2	Kansas Cit
Menorah Medical Center	Kansas Cit
Research Hospital	Kansas Cit
St. Joseph Hospital	Kansas Cit
St. Luke's Hospital	Kansas Cit
St. Mary's Hospital	Kansas Cit
Trinity Lutheran Hospital	Kansas Cit
Missouri Methodist Hospital	St. Josep
St. Joseph's Hospital	St. Josep
Christian Hospital	St.
De Paul Hospital	St.
Evangelical Deaconess Hospital	St.
Homer G. Phillips Hospital	St.
Jewish Hospital	St.
Missouri Baptist Hospital	St.
St. Anthony's Hospital	St.
St. John's Hospital	St.
St. Louis City Hospital	St.
St. Luke's Hospital	St.
St. Mary's Group of Hospitals	St.
Butte Community Memorial Hospital	Butte,
St. James Hospital	Butte,
Montana Deaconess Hospital	Great Falls,
Bryan Memorial Hospital	Lincoln
Lincoln General Hospital	Lincoln
St. Elizabeth Hospital	Lincoln
Bishop Clarkson Memorial Hospital	O

NONFEDERAL—Continued

eighton Memorial-St. Joseph's Hospital	Omaha
manuel Hospital	Omaha
braska Methodist Hospital	Omaha
. Catherine's Hospital	Omaha
iversity of Nebraska Hospital	Omaha
ary Hitchcock Memorial Hospital	Hanover, N. H.
lantic City Hospital	Atlantic City, N. J.
ayonne Hospital and Dispensary	Bayonne, N. J.
oper Hospital	Camden, N. J.
r Lady of Lourdes Hospital	Camden, N. J.
est Jersey Hospital	Camden, N. J.
ast Orange General Hospital	East Orange, N. J.
lexian Brothers Hospital	Elizabeth, N. J.
lizabeth General Hospital and Dispensary	Elizabeth, N. J.
. Elizabeth Hospital	Elizabeth, N. J.
nglewood Hospital	Englewood, N. J.
ackensack Hospital	Hackensack, N. J.
. Mary's Hospital	Hoboken, N. J.
hrist Hospital	Jersey City, N. J.
ersey City Hospital	Jersey City, N. J.
t. Francis Hospital	Jersey City, N. J.
onmouth Memorial Hospital	Long Branch, N. J.
ountainside Hospital	Montclair, N. J.
ll Souls Hospital	Morristown, N. J.
orristown Memorial Hospital	Morristown, N. J.
itkin Memorial Hospital	Neptune, N. J.
arrison S. Martland Medical Center	Newark, N. J.
ospital of Saint Barnabas and for Women and Children	Newark, N. J.
ewark Beth Israel Hospital	Newark, N. J.
resbyterian Hospital	Newark, N. J.
t. Michael's Hospital	Newark, N. J.
t. Peter's General Hospital	New Brunswick, N. J.
range Memorial Hospital	Orange, N. J.
ergen Pines County Hospital	Paramus, N. J.
assaic General Hospital	Passaic, N. J.
t. Mary's Hospital	Passaic, N. J.
arnert Memorial Hospital	Paterson, N. J.
aterson General Hospital	Paterson, N. J.
t. Joseph Hospital	Paterson, N. J.
erth Amboy General Hospital	Perth Amboy, N. J.
uhlenberg Hospital	Plainfield, N. J.
omerset Hospital	Somerville, N. J.
verlook Hospital	Summit, N. J.
oly Name Hospital	Teaneck, N. J.
ercer Hospital	Trenton, N. J.
St. Francis Hospital	Trenton, N. J.
William McKinley Memorial Hospital	Trenton, N. J.
Albany Hospital	Albany, N. Y.
Memorial Hospital	Albany, N. Y.
St. Peter's Hospital	Albany, N. Y.
Binghamton City Hospital	Binghamton, N. Y.
Lawrence Hospital	Bronxville, N. Y.
Beth-El Hospital	Brooklyn
Brooklyn Hospital	Brooklyn
Coney Island Hospital	Brooklyn
Cumberland Hospital	Brooklyn
Greenpoint Hospital	Brooklyn
Jewish Hospital	Brooklyn
Kings County Hospital Center	Brooklyn
Long Island College Hospital	Brooklyn
Maimonides Hospital	Brooklyn
Methodist Hospital	Brooklyn
Norwegian Lutheran Deaconesses' Home and Hospital	Brooklyn
Prospect Heights Hospital	Brooklyn
St. Catherine's Hospital	Brooklyn
St. John's Episcopal Hospital	Brooklyn
St. Mary's Hospital	Brooklyn
Unity Hospital	Brooklyn
Wyckoff Heights Hospital	Brooklyn
Buffalo General Hospital	Buffalo
Deaconess Hospital	Buffalo
Edward J. Meyer Memorial Hospital	Buffalo
Mercy Hospital	Buffalo
Millard Fillmore Hospital	Buffalo
Sisters of Charity Hospitals	Buffalo
Mary Imogene Bassett Hospital	Cooperstown, N. Y.
Arnot-Ogden Memorial Hospital	Elmira, N. Y.
St. Joseph's Hospital	Elmira, N. Y.
Flushing Hospital and Dispensary	Flushing, N. Y.
North Country Community Hospital	Glen Cove, N. Y.
Glens Falls Hospital	Glens Falls, N. Y.
Meadowbrook Hospital	Hempstead, N. Y.
Jamaica Hospital	Jamaica, N. Y.
Mary Immaculate Hospital	Jamaica, N. Y.
Queens Hospital Center	Jamaica, N. Y.
Charles S. Wilson Memorial Hospital	Johnson City, N. Y.
Our Lady of Victory Hospital	Lackawanna, N. Y.
St. John's Long Island City Hospital	Long Island City, N. Y.
Nassau Hospital	Mineola, N. Y.
Northern Westchester Hospital	Mount Kisco, N. Y.
St. Luke's Hosptial	Newburgh, N. Y.
New Rochelle Hospital	New Rochelle, N. Y.
Beth David Hospital	New York City
Beth Israel Hospital	New York City
Bronx Hospital	New York City
Bronx Municipal Hospital Center	New York City

NONFEDERAL—Continued

Columbus Hospital	New York City
Fordham Hospital	New York City
French Hospital	New York City
Harlem Hospital	New York City
Hospital for Joint Diseases	New York City
Jewish Memorial Hospital	New York City
Knickerbocker Hospital	New York City
Lebanon Hospital	New York City
Lenox Hill Hospital	New York City
Lincoln Hospital	New York City
Misericordia Hospital	New York City
Morrisania City Hospital	New York City
Mother Cabrini Memorial Hospital	New York City
Mount Sinai Hospital	New York City
New York City Hospital	New York City
New York Infirmary	New York City
New York Polyclinic Medical School and Hospital	New York City
St. Clare's Hospital	New York City
St. Francis Hospital	New York City
St. Vincent's Hospital	New York City
Sydenham Hospital	New York City
Mount St. Mary's Hospital	Niagara Falls, N. Y.
Niagara Falls Memorial Hospital	Niagara Falls, N. Y.
United Hospital	Port Chester, N. Y.
St. Francis Hospital	Poughkeepsie, N. Y.
Vassar Brothers Hospital	Poughkeepsie, N. Y.
Genessee Hospital	Rochester, N. Y.
Highland Hospital	Rochester, N. Y.
Rochester General Hospital	Rochester, N. Y.
St. Mary's Hospital	Rochester, N. Y.
Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.
Ellis Hospital	Schenectady, N. Y.
St. Clare's Hospital	Schenectady, N. Y.
St. Vincent's Hospital	Staten Island, N. Y.
Staten Island Hospital	Staten Island, N. Y.
General Hospital	Syracuse, N. Y.
St. Joseph's Hospital	Syracuse, N. Y.
State University of New York Upstate Medical Center	Syracuse, N. Y.
St. Mary's Hospital	Troy, N. Y.
Samaritan Hospital	Troy, N. Y.
Grasslands Hospital	Valhalla, N. Y.
St. Agnes Hospital	White Plains, N. Y.
White Plains Hospital	White Plains, N. Y.
St. John's Riverside Hospital	Yonkers, N. Y.
St. Joseph's Hospital	Yonkers, N. Y.
Yonkers General Hospital	Yonkers, N. Y.
Memorial Mission Hospital	Asheville, N. C.
Charlotte Memorial Hospital	Charlotte, N. C.
Mercy Hospital	Charlotte, N. C.
Lincoln Hospital	Durham, N. C.
Watts Hospital	Durham, N. C.
Moses H. Cone Memorial Hospital	Greensboro, N. C.
Rex Hospital	Raleigh, N. C.
St. Agnes Hospital	Raleigh, N. C.
James Walker Memorial Hospital	Wilmington, N. C.
City Memorial Hospital	Winston-Salem, N. C.
Kate Bitting Reynolds Memorial Hospital	Winston-Salem, N. C.
St. John's Hospital	Fargo, N. D.
St. Luke's Hospital	Fargo, N. D.
Grand Forks Deaconess Hospital	Grand Forks, N. D.
Trinity Hospital	Minot, N. D.
Akron General Hospital	Akron, Ohio
City Hospital	Akron, Ohio
St. Thomas Hospital	Akron, Ohio
Aultman Hospital	Canton, Ohio
Mercy Hospital	Canton, Ohio
Bethesda Hospital	Cincinnati
Christ Hospital	Cincinnati
Cincinnati General Hospital	Cincinnati
Deaconess Hospital	Cincinnati
Good Samaritan Hospital	Cincinnati
Jewish Hospital	Cincinnati
St. Mary's Hospital	Cincinnati
City Hospital	Cleveland
Evangelical Deaconess Hospital	Cleveland
Fairview Park Hospital	Cleveland
Lutheran Hospital	Cleveland
Mount Sinai Hospital	Cleveland
St. Alexis Hospital	Cleveland
St. John's Hospital	Cleveland
St. Luke's Hospital	Cleveland
St. Vincent Charity Hospital	Cleveland
University Hospitals	Cleveland
Doctors Hospital	Cleveland Heights
Grant Hospital	Columbus, Ohio
Mount Carmel Hospital	Columbus, Ohio
University Hospitals	Columbus, Ohio
White Cross Hospital	Columbus, Ohio
Good Samaritan Hospital	Dayton, Ohio
Miami Valley Hospital	Dayton, Ohio
St. Elizabeth Hospital	Dayton, Ohio
Huron Road Hospital	East Cleveland
Elyria Memorial Hospital	Elyria, Ohio
Euclid-Glenville Hospital	Euclid, Ohio
Marymount Hospital	Garfield Heights, Ohio
Mercy Hospital	Hamilton, Ohio

NONFEDERAL—Continued

Lakewood Hospital	Lakewood, Ohio
Lima Memorial Hospital	Lima, Ohio
St. Rita's Hospital	Lima, Ohio
Mercy Hospital	Springfield, Ohio
Springfield City Hospital	Springfield, Ohio
Ohio Valley Hospital	Steubenville, Ohio
Flower Hospital	Toledo, Ohio
Maumee Valley Hospital	Toledo, Ohio
Mercy Hospital	Toledo, Ohio
Riverside Hospital	Toledo, Ohio
St. Charles Hospital	Toledo, Ohio
St. Vincent's Hospital	Toledo, Ohio
Toledo Hospital	Toledo, Ohio
St. Elizabeth Hospital	Youngstown, Ohio
Youngstown Hospital	Youngstown, Ohio
Mercy Hospital, Oklahoma City General	Oklahoma City
St. Anthony Hospital	Oklahoma City
University of Oklahoma Hospitals	Oklahoma City
Wesley Hospital	Oklahoma City
Hillcrest Medical Center	Tulsa, Okla.
St. John's Hospital	Tulsa, Okla.
Sacred Heart General Hospital	Eugene, Ore.
Emanuel Hospital	Portland, Ore.
Good Samaritan Hospital	Portland, Ore.
Portland Sanitarium and Hospital	Portland, Ore.
Providence Hospital	Portland, Ore.
St. Vincent's Hospital	Portland, Ore.
Univ. of Oregon Medical School Hospitals and Clinics	*Portland, Ore.*
Abington Memorial Hospital	Abington, Pa.
Allentown Hospital	Allentown, Pa.
Sacred Heart Hospital	Allentown, Pa.
Altoona Hospital	Altoona, Pa.
Mercy Hospital	Altoona, Pa.
St. Luke's Hospital	Bethlehem, Pa.
Bryn Mawr Hospital	Bryn Mawr, Pa.
Chester Hospital	Chester, Pa.
George F. Geisinger Memorial Hospital and Foss Clinic	Danville, Pa.
Thomas M. Fitzgerald-Mercy Hospital	Darby, Pa.
Easton Hospital	Easton, Pa.
Hamot Hospital	Erie, Pa.
St. Vincent's Hospital	Erie, Pa.
Westmoreland Hospital	Greensburg, Pa.
Harrisburg Hospital	Harrisburg, Pa.
Harrisburg Polyclinic Hospital	Harrisburg, Pa.
Conemaugh Valley Memorial Hospital	Johnstown, Pa.
Nesbitt Memorial Hospital	Kingston, Pa.
Lancaster General Hospital	Lancaster, Pa.
St. Joseph's Hospital	Lancaster, Pa.
McKeesport Hospital	McKeesport, Pa.
Montgomery Hospital	Norristown, Pa.
Sacred Heart Hospital	Norristown, Pa.
Albert Einstein Medical Center, Northern Division	Philadelphia
Albert Einstein Medical Center, Southern Division	Philadelphia
Chestnut Hill Hospital	Philadelphia
Episcopal Hospital	Philadelphia
Frankford Hospital	Philadelphia
Germantown Dispensary and Hospital	Philadelphia
Graduate Hospital of the University of Pennsylvania	Philadelphia
Hahnemann Hospital	Philadelphia
Hospital of the University of Pennsylvania	Philadelphia
Hospital of the Woman's Medical College of Pennsylvania	Philadelphia
Jefferson Medical College Hospital	Philadelphia
Lankenau Hospital	Philadelphia
Memorial Hospital	Philadelphia
Methodist Episcopal Hospital	Philadelphia
Misericordia Hospital	Philadelphia
Nazareth Hospital	Philadelphia
Pennsylvania Hospital	Philadelphia
Philadelphia General Hospital	Philadelphia
Presbyterian Hospital	Philadelphia
St. Agnes Hospital	Philadelphia
St. Joseph's Hospital	Philadelphia
St. Luke's and Children's Medical Center	Philadelphia
St. Mary's Hospital	Philadelphia
Temple University Hospital	Philadelphia
Woman's Hospital	Philadelphia
Allegheny General Hospital	Pittsburgh
Mercy Hospital	Pittsburgh
Montefiore Hospital	Pittsburgh
Pittsburgh Hospital	Pittsburgh
Presbyterian Hospital	Pittsburgh
St. Francis General Hospital and Rehabilitation Institute	Pittsburgh
St. John's General Hospital	Pittsburgh
St. Joseph's Hospital and Dispensary	Pittsburgh
St. Margaret Memorial Hospital	Pittsburgh
Shadyside Hospital	Pittsburgh
South Side Hospital	Pittsburgh
Western Pennsylvania Hospital	Pittsburgh
Community General Hospital	Reading, Pa.
Reading Hospital	Reading, Pa.
St. Joseph's Hospital	Reading, Pa.
Robert Packer Hospital	Sayre, Pa.
Scranton State Hospital	Scranton, Pa.
Sewickley Valley Hospital	Sewickley, Pa.
Sharon General Hospital	Sharon, Pa.
Allegheny Valley Hospital	Tarentum, Pa.

Uniontown Hospital	Uniontow
Washington Hospital	Washingto
Chester County Hospital	West Chest
Mercy Hospital	Wilkes-Barr
Wilkes-Barre General Hospital	Wilkes-Barr
Columbia Hospital	Wilkinsbur
Divine Providence Hospital	Williamspor
Williamsport Hospital	Williamspor
York Hospital	Yor
Newport Hospital	Newport
Memorial Hospital	Pawtucket
Miriam Hospital	Providence
Rhode Island Hospital	Providence
Roger Williams General	
St. Joseph's Hospital....	
Roper Hospital	Charleston
Columbia Hospital of Richland County	Columbia
McLeod Infirmary	Florence
Greenville General Hospital	Greenville
Orangeburg Regional Hospital	Orangeburg
Spartanburg General Hospital	Spartanburg
McKennan Hospital	Sioux Falls,
Sioux Valley Hospital	Sioux Falls,
Sacred Heart Hospital	Yankton,
Baroness Erlanger Hospital	Chattanooga,
Holston Valley Community Hospital	Kingsport,
East Tennessee Baptist Hospital	Knoxville
Fort Sanders Presbyterian Hospital	*Knoxville,*
Knoxville General Hospital	Knoxville,
St. Mary's Memorial Hospital	Knoxville
Baptist Memorial Hospital	Memphis
John Gaston Hospital	Memphis
Methodist Hospital	Memphis
St. Joseph's Hospital	Memphis
Baptist Hospital	Nashville
George W. Hubbard Hospital	Nashville
St. Thomas Hospital	Nashville
Brackenridge Hospital	Austin
Memorial Hospital	Corpus Christi
Baylor University Hospital	Dallas
Methodist Hospital	Dallas
Parkland Memorial Hospital	Dallas
St. Paul's Hospital	Dallas
El Paso General Hospital	El Paso
Hotel Dieu Sisters' Hospital	El Paso
Harris Hospital	Fort Worth
John Peter Smith Hospital	Fort Worth
St. Joseph's Hospital	Fort Worth
University of Texas Medical Branch Hospitals	Galveston
Hermann Hospital	Houston
Jefferson Davis Hospital	Houston
Methodist Hospital	Houston
St. Joseph's Hospital	Houston
Baptist Memorial Hospital	San Antonio
Robert B. Green Memorial Hospital	San Antonio
Santa Rosa Hospital	San Antonio
Kings Daughters Hospital	Temple
Scott and White Memorial Hospitals	Temple
Providence Hospital	Waco
St. Benedict's Hospital	Ogde
Thomas D. Dee Memorial Hospital	Ogde
Dr. W. H. Groves Latter-Day Saints Hospital	Salt La
Holy Cross Hospital	Salt La
St. Mark's Hospital	Salt La
Salt Lake County General Hospital	Salt La
Bishop De Goesbriand Hospital	Burlingt
Mary Fletcher Hospital	Burlingt
Alexandria Hospital	Alexand
University of Virginia Hospital	Charlottesvi
Memorial Hospital	Danvi
Lynchburg General Hospital	Lynchbu
Mary Immaculate Hospital	Newport Ne
Riverside Hospital	Newport Ne
De Paul Hospital	Norfo
Norfolk General Hospital	Norfo
Johnston-Willis Hospital	Richmo
Medical College of Virginia—Hospital Division	Richmo
Lewis-Gale Hospital	Roano
Roanoke Memorial Hospital	Roano
Louise Obici Memorial Hospital	Suffo
Winchester Memorial Hospital	Winchest
Doctors Hospital	
King County Hospital Unit No. 1 (Harborview)	
Providence Hospital	
Seattle General Hospital	
Swedish Hospital	
Virginia Mason Hospital	
Deaconess Hospital	Spokane,
Sacred Heart Hospital	Spokane,
St. Luke's Hospital	Spokane,
Pierce County Hospital	Tacoma,
St. Joseph Hospital	Tacoma,
Tacoma General Hospital	Tacoma,
Charleston General Hospital	Charleston,
Kanawha Valley Hospital	Charleston,
Memorial Hospital	Charleston,

NONFEDERAL—Continued

Mary's Hospital	Huntington, W. Va.
nden-Clark Memorial Hospital	Parkersburg, W. Va.
Joseph's Hospital	Parkersburg, W. Va.
o Valley General Hospital	Wheeling, W. Va.
ther Hospital	Eau Claire, Wis.
rcy Hospital	Janesville, Wis.
Crosse Lutheran Hospital	La Crosse, Wis.
Francis Hospital	La Crosse, Wis.
dison General Hospital	Madison, Wis.
thodist Hospital	Madison, Wis.
Mary's Hospital	Madison, Wis.
iversity Hospitals	Madison, Wis.
Joseph's Hospital	Marshfield, Wis.
lumbia Hospital	Milwaukee
angelical Deaconess Hospital	Milwaukee
waukee County Hospital	Milwaukee
waukee Hospital	Milwaukee
sericordia Hospital	Milwaukee
unt Sinai Hospital	Milwaukee
Joseph's Hospital	Milwaukee
Luke's Hospital	Milwaukee
Mary's Hospital	Milwaukee
Michael Hospital	Milwaukee
rcy Hospital	Oshkosh, Wis.
Mary's Hospital	Wausau, Wis.
rgas Hospital	Ancon, C. Z.
ukini Hospital	Honolulu, T. H.
eens Hospital	Honolulu, T. H.
Francis Hospital	Honolulu, T. H.
ecibo District Hospital	Arecibo, P. R.
yamon District Hospital	Bayamon, P. R.
jardo District Hospital	Fajardo, P. R.
spital de Damas	Ponce, P. R.
esbyterian Hospital	San Juan, P. R.
o Piedras Municipal Hospital	San Juan, P. R.
n Juan City Hospital	San Juan, P. R.

ROTATING (MED. MAJOR)

Number of Approved Programs, 9

orge Washington University Hospital	Washington, D. C.
avenswood Hospital	Chicago
vedish Covenant Hospital	Chicago
emorial Hospital of Du Page County	Elmhurst, Ill.
olyoke Hospital	Holyoke, Mass.
niversity Hospital	Ann Arbor, Mich.
issouri Baptist Hospital	St. Louis
iverside Hospital	Newport News, Va.
orfolk General Hospital	Norfolk, Va.

ROTATING (SURG. MAJOR)

Number of Approved Programs, 10

eorge Washington University Hospital	Washington, D. C.
avenswood Hospital	Chicago
emorial Hospital of Du Page County	Elmhurst, Ill.
E. Schumpert Memorial Hospital	Shreveport, La.
olyoke Hospital	Holyoke, Mass.
niversity Hospital	Ann Arbor, Mich.
Missouri Baptist Hospital	St. Louis
Bellevue Hospital Center Div. I—Surgical—Columbia University	New York City
Riverside Hospital	Newport News, Va.
Norfolk General Hospital	Norfolk, Va.

ROTATING (PED. MAJOR)

Number of Approved Programs, 4

Memorial Hospital of Du Page County	Elmhurst, Ill.
University Hospital	Ann Arbor, Mich.
Riverside Hospital	Newport News, Va.
Norfolk General Hospital	Norfolk, Va.

ROTATING (OB.-GYN. MAJOR)

Number of Approved Programs, 6

Ravenswood Hospital	Chicago
Memorial Hospital of Du Page County	Elmhurst, Ill.
University Hospital	Ann Arbor, Mich.
Woman's Hospital	Philadelphia
Riverside Hospital	Newport News, Va.
Norfolk General Hospital	Norfolk, Va.

OTHER ROTATING

Number of Approved Programs, 10

University of Colorado Medical Center
  Denver General Hospital .... Denver
    Community Rotating
George Washington University Hospital .... Washington, D. C.
    Rotating (Path.-Major)

OTHER ROTATING—Continued

University Hospital .... Ann Arbor, Mich.
  Rotating (Neurol.-Major)
  Rotating (Derm.-Major)
  Rotating (Anes.-Major)
  Rotating (Otol.-Major)
  Rotating (Ophth.-Major)
  Rotating (Phys. Med. Rehab.-Major)
  Rotating (Gen. Prac.-Major)
  Rotating (Path.-Major)

MIXED

Number of Approved Programs, 25

U. S. Public Health Service Hospital, Boston, Mass.; Med.-Surg.
University Hospital, Little Rock, Ark.; Ob.-Gyn.-Med.
St. Vincent's Hospital, Los Angeles; Med.-Surg.-Ob.-Gyn.
University of California Hospital, San Francisco; Med.-Ob.; Med.-Surg.
University of Kansas Medical Center, Kansas City, Kan.; Med.-Surg.-Ped.
Hospital for Women, Baltimore; Med.-Ob.-Gyn.
Lutheran Hospital, St. Louis; Med.-Surg.-Ob.-Gyn.
Mary Imogene Bassett Hospital, Cooperstown, N. Y.; Med.-Surg.
Bellevue Hospital Center, New York City
  Division I—Medical—Columbia University; Med.-Chest-Surg. or Path.
Bellevue Hospital Center, New York City
  Division II—Medical—Cornell University; Med.-Path.
Bellevue Hospital Center, New York City
  Division III—Medical—New York University College of Medicine; Med.-Surg.
Bellevue Hospital Center, New York City
  Division III—Surgical—New York University College of Medicine; Surg.-Med.
Lenox Hill Hospital, New York City; Med.-Surg.-Ob.-Gyn.
Montefiore Hospital, New York City; Med.-Surg.-Pul.-Neur.-Neoplastic
Roosevelt Hospital, New York City; Med.-Ped.-Surg.; Surg.-Gyn.-Med.
St. Luke's Hospital, New York City; Med.-Surg.; Surg.-Med.
Strong Memorial-Rochester Municipal Hospitals, Rochester, N. Y.; Surg.-Ob.-Gyn.
North Carolina Memorial Hospital, Chapel Hill, N. C.; Med.-Ped.
Duke Hospital, Durham, N. C.; Ob.-Ped.
Watts Hospital, Durham, N. C.; Med.-Ob.-Surg.
North Carolina Baptist Hospital, Winston-Salem, N. C.; Ped.-Ob.-Gyn.
Bethesda Hospital, Cincinnati; Med.-Ob.-Surg.
North Carolina Baptist Hospital, Winston-Salem, N. C.; Ped.-Ob.-Gyn. Ped.
Baroness Erlanger Hospital, Chattanooga, Tenn.; Med.-Ob.-Ped.
Jefferson Hospital, Roanoke, Va.; Surg.-Med.-Ob.

STRAIGHT

Total Number of Approved Programs, 208

INTERNAL MEDICINE

Number of Approved Programs, 74

Veterans Admin. Hospital	Long Beach, Calif.
Veterans Admin. Hospital	Los Angeles
Veterans Admin. Hospital	Atlanta, Ga.
Veterans Admin. Hospital	Oklahoma City
Veterans Admin. Hospital	Dallas, Texas
Veterans Admin. Hospital	McKinney, Texas
Veterans Admin. Hospital	Salt Lake City
University Hospital	Little Rock, Ark.
Stanford University Hospitals	San Francisco
University of California Hospital	San Francisco
Bridgeport Hospital	Bridgeport, Conn.
Grace-New Haven Community Hospital	New Haven, Conn.
Georgetown University Hospital	Washington, D. C.
Grady Memorial Hospital	Atlanta, Ga.
Emory University Hospital	Emory University, Ga.
Michael Reese Hospital	Chicago
Louisville General Hospital	Louisville, Ky.
Baltimore City Hospitals	Baltimore
Church Home and Hospital	Baltimore
Johns Hopkins Hospital	Baltimore
Sinai Hospital	Baltimore
University Hospital	Baltimore
Beth Israel Hospital	Boston
Boston City Hospital	Boston
Massachusetts General Hospital	Boston
Massachusetts Memorial Hospitals	Boston
New England Center Hospital	Boston
Peter Bent Brigham Hospital	Boston
Northwestern Hospital	Minneapolis
University of Minnesota Hospitals	Minneapolis
Barnes Hospital	St. Louis
St. Mary's Group of Hospitals	St. Louis
Jersey City Hospital	Jersey City, N. J.
Albany Hospital	Albany, N. Y.
Cumberland Hospital	Brooklyn
Kings County Hospital Center	Brooklyn
Long Island College Hospital	Brooklyn
Maimonides Hospital	Brooklyn
Methodist Hospital	Brooklyn
St. John's Episcopal Hospital	Brooklyn
Buffalo General Hospital	Buffalo
Mary Imogene Bassett Hospital	Cooperstown, N. Y.

INTERNAL MEDICINE—Continued

Charles S. Wilson Memorial Hospital	Johnson City, N. Y.
Bellevue Hospital Center Division II—Medical Cornell University	New York City
Bellevue Hospital Center Division III—Medical *New York University College of Medicine*	New York City
Bellevue Hospital Center Division IV—Medical New York University Postgraduate Medical School	New York City
Bronx Municipal Hospital Center	New York City
Lebanon Hospital	New York City
New York Hospital	New York City
Presbyterian Hospital	New York City
St. Clare's Hospital	New York City
St. Vincent's Hospital	New York City
Genesee Hospital	Rochester, N. Y
Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.
State University of New York Upstate Medical Center	Syracuse, N. Y.
North Carolina Memorial Hospital	Chapel Hill, N. C.
Duke Hospital	Durham, N. C.
Watts Hospital	Durham, N. C.
North Carolina Baptist Hospital	Winston-Salem, N. C.
University Hospitals	Cleveland
Woman's Hospital	Philadelphia
Baptist Memorial Hospital	Memphis, Tenn.
St. Thomas Hospital	Nashville, Tenn.
Vanderbilt University Hospital	Nashville, Tenn.
Baylor University Hospital	Dallas, Texas
Parkland Memorial Hospital	Dallas, Texas
St. Paul's Hospital	*Dallas, Texas*
Jefferson Davis Hospital	Houston, Texas
Methodist Hospital	Houston, Texas
Salt Lake County General Hospital	Salt Lake City
University of Virginia Hospital	Charlottesville, Va.
Chesapeake and Ohio Hospital	Clifton Forge, Va.
Medical College of Virginia—Hospital Division	Richmond, Va.
King County Hospital, Unit No. 1 (Harborview)	Seattle

OBSTETRICS AND GYNECOLOGY

Number of Approved Programs, 8

University Hospital	Little Rock, Ark.
Johns Hopkins Hospital	Baltimore
Barnes Hospital	St. Louis
Norwegian Lutheran Deaconesses' Home and Hospital	Brooklyn
Sisters of Charity Hospitals	Buffalo
Charles S. Wilson Memorial Hospital	Johnson City, N. Y.
Watts Hospital (Ob. only)	Durham, N. C.
Vanderbilt University Hospital	Nashville, Tenn.

PATHOLOGY

Number of Approved Programs, 24

University of California Hospital	San Francisco
Grace-New Haven Community Hospital	New Haven, Conn.
Emory University Hospital	Emory University, Ga.
Michael Reese Hospital	Chicago
Baltimore City Hospitals	Baltimore
Johns Hopkins Hospital	Baltimore
Boston City Hospital	Boston
Children's Medical Center	Boston
Massachusetts General Hospital	Boston
Massachusetts Memorial Hospitals	*Boston*
Holyoke Hospital	Holyoke, Mass.
Barnes Hospital	St. Louis
Jersey City Hospital	Jersey City, N. J.
Kings County Hospital Center	Brooklyn
Methodist Hospital	Brooklyn
Bellevue Hospital Center, Division III—Pathology New York University College of Medicine	New York City
New York Hospital	New York City
Presbyterian Hospital	New York City
Genesee Hospital	Rochester, N. Y.
Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.
Duke Hospital	Durham, N. C.
North Carolina Baptist Hospital	Winston-Salem, N. C.
Good Samaritan Hospital	Portland, Ore.
Vanderbilt University Hospital	Nashville, Tenn.

PEDIATRICS

Number of Approved Programs, 42

University Hospital and Hillman Clinic	Birmingham, Ala.
University Hospital	Little Rock, Ark.
Childrens Hospital	Los Angeles
Stanford University Hospitals	San Francisco
University of California Hospital	San Francisco
Grace-New Haven Community Hospital	New Haven, Conn.
Grady Memorial Hospital	Atlanta, Ga.
Michael Reese Hospital	Chicago
University of Chicago Clinics	Chicago
Louisville General Hospital	Louisville, Ky.
Baltimore City Hospitals	Baltimore
Johns Hopkins Hospital	Baltimore
Sinai Hospital	Baltimore
University Hospital	Baltimore

PEDIATRICS—Continued

Boston City Hospital	B
Children's Medical Center	B
Massachusetts General Hospital	B
Northwestern Hospital	Minneap
University of Minnesota Hospitals	Minneap
St. Louis Children's Hospital	St. L
St. Mary's Group of Hospitals	St. L
Jersey City Hospital	Jersey City, N
Cumberland Hospital	Broo
Jewish Hospital	Broo
Kings County Hospital Center	Broo
Long Island College Hospital	Broo
Methodist Hospital	Broo
St. John's Episcopal Hospital	Broo
Bellevue Hospital Center—Division III—Pediatrics New York University College of Medicine	New York
New York Hospital	New York
Strong Memorial-Rochester Municipal Hospitals	Rochester,
State University of New York Upstate Medical Center	Syracuse,
North Carolina Memorial Hospital	Chapel Hill,
Duke Hospital	Durham,
North Carolina Baptist Hospital	Winston-Salem,
University Hospitals	Clev
St. Thomas Hospital	Nashville,
Vanderbilt University Hospital	Nashville,
Children's Medical Center	Dallas,
Jefferson Davis Hospital	Houston,
Salt Lake County General Hospital	*Salt Lak*
Milwaukee Children's Hospital	Milw

SURGERY

Number of Approved Programs, 60

Stanford University Hospitals	San Fra
University of California Hospital	San Fra
Bridgeport Hospital	Bridgeport,
Grace-New Haven Community Hospital	New Haven,
Grady Memorial Hospital	Atlant
Emory University Hospital	Emory Universit
Michael Reese Hospital	Cl
Mount Sinai Hospital	Cl
Provident Hospital	Cl
Indiana University Medical Center	Indian
Johns Hopkins Hospital	Bal
Sinai Hospital	Bal
Beth Israel Hospital	B
Boston City Hospital	B
Massachusetts General Hospital	B
Massachusetts Memorial Hospitals	B
New England Center Hospital	B
Peter Bent Brigham Hospital	B
Northwestern Hospital	Minne
University of Minnesota Hospitals	Minne
St. Joseph Hospital	Kansas Cit
Barnes Hospital	St.
St. Mary's Group of Hospitals	St.
Jersey City Hospital	Jersey City
Albany Hospital	Albany
Cumberland Hospital	Br
Kings County Hospital Center	Br
Long Island College Hospital	Br
Methodist Hospital	Br
St. John's Episcopal Hospital	Br
Buffalo General Hospital	B
Queens Hospital Center	Jamaica
Charles S. Wilson Memorial Hospital	Johnson City
Bellevue Hospital Center—Division I—Surgical Columbia University	New Yor
Bellevue Hospital Center Division II—Surgical Cornell University	New Yor
Bellevue Hospital Center Division III—Surgical New York University College of Medicine	New Yor
Bellevue Hospital Center Division IV—Surgical *New York University Postgraduate Medical School*	New Yor
Lebanon Hospital	New Yor
Mount Sinai Hospital	New Yor
New York Hospital	New Yor
Presbyterian Hospital	New Yor
St. Clare's Hospital	New Yor
St. Vincent's Hospital	New Yor
Genesee Hospital	Rochester
Highland Hospital	Rochester
Strong Memorial-Rochester Municipal Hospitals	Rochester
State University of New York Upstate Medical Center	Syracuse
North Carolina Memorial Hospital	Chapel Hill
Duke Hospital	Durham
Watts Hospital	Durham
North Carolina Baptist Hospital	Winston-Salem
University Hospitals	Cle
Baptist Memorial Hospital	Memphis,
St. Thomas Hospital	Nashville,
Vanderbilt University Hospital	Nashville,
Baylor University Hospital	Dallas,
Jefferson Davis Hospital	Houston,
Methodist Hospital	Houston,
University of Virginia Hospital	Charlottesvill
Medical College of Virginia—Hospital Division	Richmon

APPROVED RESIDENCIES AND FELLOWSHIPS

Council on Medical Education and Hospitals of the American Medical Association
535 North Dearborn Street, Chicago 10

Revised to September 1, 1955

Hospitals, 1,201; Assistant Residencies, Residencies and Fellowships, 25,841

The following services are approved by the Council on Medical Education and Hospitals as meeting the requirements of the sentials of Approved Residencies and Fellowships. In those specialties in which certifying boards have been established approval extended in concurrence with the Board concerned as indicated. The number of years of training for which approval has been anted is indicated in the column, "Length of Approved Program (years)." Residencies in which this designation does not appear ive been approved without specifying the number of years for which they are accredited. The beginning stipends for Federal spitals have not been listed; they are established in accordance with government pay tables. For information on affiliate services, fer to pages 356 to 363.

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1. ALLERGY

The following services have been approved for one year of training by the Council and the Subspecialty Board for Allergy of the American Board of Internal Medicine.

Hospitals, 18; Assistant Residencies and Residencies, 32

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
FEDERAL							
UNITED STATES ARMY							
rmy Medical Center Hospital[1-3]	Washington, D. C.	W. H. Diessner	...	13,130	2	2	...
UNITED STATES NAVY							
.S. Naval Hospital[1]	San Diego, Calif.		.....	.....	..	..	...
VETERANS ADMINISTRATION							
eterans Admin. Hospital[1-3]	Long Beach, Calif.	B. F. Klaumann	322	3,500	..	1	...
eterans Admin. Research Hospital[1]	Chicago	(See Northwestern Medical Center)					
eterans Admin. Hospital[1]	Pittsburgh	L. H. Criep	150	.....	2	2	...
NONFEDERAL							
orthwestern University Medical Center[1-3]	Chicago	S. Feinberg	...	3,818	2	2	...
Veterans Admin. Research Hospital[1]	Chicago	S. Feinberg	...	.....	..	1	...
University of Illinois Research and Educational Hospitals[1]	Chicago	M. Samter	...	6,466	1	1	...
Massachusetts General Hospital[1-3]	Boston	W. S. Burrage	...	7,316	1	1	...
University Hospital[1-3]	Ann Arbor, Mich.	J. M. Sheldon	...	9,420	2	2	218
Mayo Foundation[1-3]	Rochester, Minn.		...	.....	2	4	150
Jewish Hospital[1-3]	Brooklyn	M. Walzer	35	.....	1	1	75
New York University-Bellevue Medical Center University Hospital[1-3]	New York City	W. C. Spain	...	6,530	..	2	250
Roosevelt Hospital[1-3]	New York City	R. A. Cooke	205	40,796	4	4	200
Duke University Hospital[1-3]	Durham, N. C.	O. C. E. Hansen-Pruss	150	1,576	..	2	200
Temple University Hospital[1-3]	Philadelphia	L. Tuft	...	3,792	1	1	...
Montefiore Hospital[1-3]	Pittsburgh	L. H. Criep	177	16,750	2	2	125
University of Virginia Hospital[1-3]	Charlottesville, Va.	O. Swineford, Jr.	...	810	3	3	50
Medical College of Virginia—Hospital Division[1-6]	Richmond, Va.	M. E. B. Owens	...	6,180	..	1	100

2. ANESTHESIOLOGY

The following services have been approved by the Council and the American Board of Anesthesiology for two years of training.

Hospitals, 191; Assistant Residencies and Residencies, 1,068

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
FEDERAL							
UNITED STATES ARMY							
Letterman Army Hospital[1]	San Francisco	D. E. McQuigg	6,537	2,480	..	2	...
Fitzsimons Army Hospital[1]	Denver	E. P. Shannon, Jr.	5,334	2,930	..	..	...
Army Medical Center[1-3]		H. C. Slocum	10,596	7,948	4	10	...
Brooke Army Hospital[1-3]		J. G. Inman	6,781	4,040	4	10	...
UNITED STATES AIR FORCE							
U. S. Air Force Hospital[3]	San Antonio, Texas	A. B. Tarrow	5,952	1,624	1	2	...

Numerical and other references will be found on page 363.

2. ANESTHESIOLOGY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered*	Total Residencies Offered*
UNITED STATES NAVY						
U. S. Naval Hospital [1]	Oakland, Calif.	J. J. Marra	11,449	1,210	..	..
U. S. Naval Hospital [1-3]	Bethesda, Md.	D. P. Todd	10,443	8,121	1	2
U. S. Naval Hospital [1]	Chelsea, Mass.	P. F. D'Elia	4,322	1,404	1	2
U. S. Naval Hospital	St. Albans, N. Y.	D. M. Pino	4,773	700	2	3
UNITED STATES PUBLIC HEALTH SERVICE						
U. S. Public Health Service Hospital [1-3]	Staten Island, N. Y.	W. A. Cull	6,973	1,922	2	4
VETERANS ADMINISTRATION						
Veterans Admin. Hospital [1-3]	Los Angeles	N. H. Rupp	6,070	713	6	12
Veterans Admin. Hospital [1]	Atlanta, Ga.	K. Byers	1,626	881	1	2
Veterans Admin. Hospital [1]	Hines, Ill.	M. Sadove	12,863	1,593	5	10
Veterans Admin. Hospital [1]	Des Moines, Iowa	J. L. Bailey	2,660	503	5	7
Veterans Admin. Hospital	Iowa City	S. C. Cullen	(See University Hospitals)			
Veterans Admin. Hospital [1-3]	St. Louis	H. W. Crouch	1,618	527	2	4
Veterans Admin. Hospital [1-3]	Brooklyn	H. I. Lipson	2,934	1,148	3	6
Veterans Admin. Hospital [1-3]	Buffalo	S. I. Guest	3,134	509	2	4
Veterans Admin. Hospital [1-3]	New York City (Bronx)	E. A. Rovenstine	6,108	1,623	5	10
Veterans Admin. Hospital [1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)				
Veterans Admin. Hospital [1]	White River Junction, Vt.	R. E. Lapointe	1,358	456	1	2
Veterans Admin. Hospital [1-3]	Richmond, Va.	C. G. Lynch	3,287	812	1	3
Veterans Admin. Hospital [1-3]	Milwaukee (Wood)	R. Foregger-R. C. Tella	3,525	1,338	4	6

NONFEDERAL

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered*	Total Residencies Offered*
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	A. McNeal	9,350	5,672	1	3
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	E. Robinson, Jr.-R. Grady	3,345	1,856	1	2
St. Vincent Infirmary [1-3]	Little Rock, Ark.	J. P. Hickey	4,045	967	6	12
University Hospital [1-3]	Little Rock, Ark.	C. W. Shafer	1,928	1,407	3	5
Los Angeles County General Hospital [1]	Los Angeles	J. S. Denson	14,688	6,858	8	18
White Memorial Hospital [1-3]	Los Angeles	F. E. Leffingwell	4,917	2,423	3	6
Highland-Alameda County Hospital [1-3]	Oakland, Calif.	E. E. Brinckerhoff	3,609	1,369	2	4
Samuel Merritt Hospital [1]	Oakland, Calif.	B. M. Anderson	6,122	4,472	3	6
Mount Zion Hospital [1-3]	San Francisco	A. J. Harris	4,951	3,419	1	2
St. Francis Memorial Hospital [1-3]	San Francisco	J. E. Cann	5,750	5,520	2	2
St. Joseph's Hospital [1-3]	San Francisco	R. A. Simpson	4,081	1,822	1	2
Stanford University Hospitals [1-3]	San Francisco	P. J. Bailey	7,460	4,191	1	4
University of California Hospital [1-3]	San Francisco	F. J. Murphy	5,789	4,469	4	7
Santa Clara County Hospital [1]	San Jose, Calif.	J. Atkinson	1,814	3,428	2	2
Community Hospital of San Mateo County [1-3]	San Mateo, Calif.	W. H. Cassels	1,278	903	1	2
University of Colorado Medical Center						
Colorado General Hospital [1-3]	Denver	R. W. Virtue	2,371	1,740	2	6
Denver General Hospital [1-3]	Denver	R. W. Virtue	2,493	1,665	..	..
Bridgeport Hospital [1-3]	Bridgeport, Conn.	D. L. Massey	5,698	2,676	1	2
Hartford Hospital [1-3]	Hartford, Conn.	R. M. Tovell	37,979	17,032	12	24
St. Francis Hospital [1-3]	Hartford, Conn.	S. J. Martin	15,754	7,069	6	12
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	L. J. Hampton	11,911	9,767	4	7
Hospital of St. Raphael [3]	New Haven, Conn.	M. Garofalo	9,328	7,035	2	4
District of Columbia General Hospital	Washington, D. C.	S. N. Albert	5,166	3,192	3	5
Doctors Hospital [1-3]	Washington, D. C.	D. Stubbs	8,481	6,955	1	2
Garfield Memorial Hospital [1-3]	Washington, D. C.	W. E. Bageant	4,055	3,798	2	3
Georgetown University Hospital [3]	Washington, D. C.	T. F. McDermott	7,918	3,200	5	10
George Washington University Hospital [1-3]	Washington, D. C.	C. S. Coakley	10,586	9,016	4	9
Jackson Memorial Hospital [1-3]	Miami, Fla.	R. S. Sappenfield	12,847	8,185	2	4
University Hospital [1-3]	Augusta, Ga.	P. P. Volpitto	7,447	5,163	4	7
American Hospital [1-3]	Chicago	A. Rappaport	2,594	1,687	5	6
Grant Hospital [1-3]	Chicago	O. Gleave	4,457	3,430	2	2
Michael Reese Hospital [1-3]	Chicago	B. Stodsky	9,678	6,190	1	1
Mount Sinai Hospital [1-3]	Chicago	R. Weyl	5,875	5,272	3	6
Northwestern University Medical Center						
Chicago Wesley Memorial Hospital [1-3]	Chicago	M. Karp	10,632	9,269	2	4
St. Luke's Hospital [1-3]	Chicago	P. W. Searles	6,359	5,302	3	9
University of Chicago Clinics [1-3]	Chicago	E. T. Morch	9,174	5,892	4	9
University of Illinois Research and Educational Hospitals [1]	Chicago	M. S. Sadove	3,732	3,200	6	11
Evanston Hospital [1-3]	Evanston, Ill.	C. Baldwin	6,385	1,587	1	2
St. Joseph's Hospital	Joliet, Ill.	L. D. Ruttle	6,253	5,127	2	4
Indianapolis General Hospital [1-3]	Indianapolis	L. Mueller	12,852	3,824	2	4
Indiana University Medical Center [1]	Indianapolis	V. K. Stoelting	9,072	6,841	7	14
Memorial Hospital [1]	South Bend, Ind.	G. M. Rosenheimer	6,815	5,473	2	2
University Hospitals [1-3]	Iowa City	S. C. Cullen	10,980	6,925	7	14
University of Kansas Medical Center [1-3]	Kansas City, Kan.	P. Lorhan	7,628	3,588	2	8
Louisville General Hospital [1-3]	Louisville, Ky.	R. P. Bergner	7,000	6,000	3	6
Charity Hospital of Louisiana [1]	New Orleans	J. Adriani	22,000	10,000	6	12
Ochsner Foundation Hospital [1]	New Orleans	G. B. Grant	4,121	1,540	3	6
Eastern Maine General Hospital [1]	Bangor, Maine	C. S. Dwyer	6,431	3,216	1	2
Central Maine General Hospital [1]	Lewiston, Maine	G. Clapperton	4,322	3,394	1	2
Maine General Hospital [1]	Portland, Maine	J. R. Lincoln	6,042	3,825	2	4
University Hospital [1-3]	Baltimore	R. B. Dodd	8,543	2,596	4	8
Boston City Hospital [1-3]	Boston	P. S. Marcus	11,462	7,857	..	12
Lahey Clinic [1-3]	Boston	U. H. Eversole	18,749	5,739	6	12
Massachusetts General Hospital [1-3]	Boston	H. K. Beecher	14,770	9,000	8	16
Massachusetts Memorial Hospitals [1-3]	Boston	J. Arrowood	3,615	2,702	3	8
New England Center Hospital [1-3]	Boston	B. E. Etsten	3,210	2,247	1	6
New England Deaconess Hospital [1-3]	Boston	L. V. Hand-F. J. Audin	5,534	2,606	3	6
New England Hospital [1-3]	Boston	E. Bartlett	3,299	2,793	1	2
Peter Bent Brigham Hospital [1-3]	Boston	L. D. Vandam	3,282	2,307	2	4
St Elizabeth's Hospital [1-3]	Boston	L. P. Zentgraf	10,622	3,877	3	3
Cambridge City Hospital [1-3]	Cambridge, Mass.	D. R. Branch	13,279	1,084	2	2
Mount Auburn Hospital [1-3]	Cambridge, Mass.	J. H. Buskirk	4,925	2,906	1	4
Holyoke Hospital [1-3]	Holyoke, Mass.	M. G. Black	3,268	1,554	..	2
Newton-Wellesley Hospital [1-3]	Newton Lower Falls, Mass.	J. E. Shaw	5,250	3,146	1	2
	Springfield, Mass.	H. N. Memery	8,357	2,591	1	1
	Worcester, Mass.	W. J. Martin, Jr.	6,199	3,130	8	6
	Worcester, Mass.	W. Allegree	6,234	2,225	2	2
University Hospital	Ann Arbor, Mich.	R. B. Sweet	10,053	4,023	3	6
Detroit Memorial Hospital [1]	Detroit	E. J. Agnone	7,362	4,985	1	2
Harper Hospital [1-3]	Detroit	A. B. Stearns	15,975	5,986	1	2
Henry Ford Hospital [1-3]	Detroit	P. Dumke	15,010	5,594	4	8
Providence Hospital [1-3]	Detroit	N. M. Bittrick	10,308	2,925	2	4
Receiving Hospital [1-3]	Detroit	F. E. Greifenstein	8,467	1,725	5	12
Butterworth Hospital [1-3]	Grand Rapids, Mich.	M. L. Byrd	10,734	4,287	1	2
University of Minnesota Hospitals [1-3]	Minneapolis	F. Van Bergen	18,403	13,251	12	28

Numerical and other references will be found on page 363.

2. ANESTHESIOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Mayo Foundation[1-3]	Rochester, Minn.	A. Faulconer, Jr.	30,375	20,000	8	15	150
Research Hospital[1-3]	Kansas City, Mo.	M. C. Peterson	6,687	3,366	1	2	150
t. John's Hospital[1-3]	St. Louis	S. Brown	5,280	2,235	1	1	200
University of Nebraska Hospital[1-3]	Omaha	H. H. Davis	2,105	1,490	1	2	...
Mary Hitchcock Memorial Hospital[1-3]	Hanover, N. H.	R. H. Barrett	3,703	1,781	2	4	188
ersey City Medical Center[1-3]	Jersey City, N. J.	W. J. Gleeson	6,353	3,931	3	5	92
t. Joseph Hospital[1-3]	Paterson, N. J.	E. T. Lawless	6,236	3,656	2	3	150
Albany Hospital[1-3]	Albany, N. Y.	G. Converse	7,599	5,254	4	9	...
Beth-El Hospital[1-3]	Brooklyn	A. C. Goldfeder	7,360	2,789	2	3	125
ewish Hospital[1-3]	Brooklyn	I. M. Pallin	13,100	8,578	4	8	100
Kings County Hospital							
County Division	Brooklyn	M Harmel	.....	.....	5	10	...
Maimonides Hospital[1-3]	Brooklyn	L. Holzmann	8,627	4,958	..	3	75
St. Catherine's Hospital[1-3]	Brooklyn	F. P. Ansbro	3,632	1,701	2	4	125
Buffalo General Hospital[1-3]	Buffalo	R. N. Terry	13,393	7,507	1	2	175
Edward J. Meyer Memorial Hospital[1]	Buffalo	E D. Babbage	3,232	2,763	2	5	179
Millard Fillmore Hospital[1-3]	Buffalo	E. D. Babbage	11,595	1,587	1	2	255
Flushing Hospital and Dispensary[1-3]	Flushing, N. Y.	E. Apogi	9,118	7,808	1	2	150
Bellevue Hospital Center							
Division IV—New York University Post-Graduate Medical School[1-3]	New York City	E. A. Rovenstine	19,200	10,100	10	22	105
Beth Israel Hospital[1-3]	New York City	S. G. Hershey	6,269	4,816	2	4	135
Flower and Fifth Avenue Hospitals[1-3]	New York City	D. E. Brace	7,606	3,240	1	2	...
Harlem Hospital[1]	New York City	H. D. Mayer	7,000	3,500	2	4	105
Hospital for Joint Diseases[1-3]	New York City	A. M Betcher	3,187	2,286	2	3	80
Lenox Hill Hospital[1-3]	New York City	M. Frick	8,605	6,358	2	3	180
Memorial Center for Cancer and Allied Diseases[1-3]	New York City	S. W. Howland	7,356	3,223	3	7	200
Metropolitan Hospital[1-3]	New York City	D. E. Brace	5,069	2,395	5	10	104
Montefiore Hospital[1-3]	New York City	E. Kepes	2,042	1,508	2	3	75
Mount Sinai Hospital[1-3]	New York City	M. Adelman	11,092	4,848	4	7	50
New York City Hospital[1-3]	New York City	D. Bizzarri	2,613	1,218	2	4	345
New York Hospital[1-3]	New York City	J. F. Artusio	9,628	6,102	5	10	34
New York Polyclinic Medical School and Hospital[1-3]	New York City	J. Milowsky	6,481	4,607	3	6	...
Presbyterian Hospital[1-3]	New York City	E. M. Papper	22,698	15,634	11	26	208
St. Clare's Hospital[1-3]	New York City	G. A. Keating	3,241	1,412	1	2	125
St. Luke's Hospital[1-3]	New York City	G. E. Burford	5,413	4,061	2	4	75
St. Vincent's Hospital[1-3]	New York City	V. J. Collins	3,910	2,795	3	6	150
Genesee Hospital*	Rochester, N. Y.	E. Kistler	5,671	4,003	1	1	75
Highland Hospital[1-3]	Rochester, N. Y.	H. E. Root	5,037	8,964	1	1	100
St. Mary's Hospital[1]	Rochester, N. Y.	....	9,405	7,010	2	4	...
Strong Memorial-Rochester Municipal Hospital[1-3]	Rochester, N. Y.	N. M. Greene	8,222	5,920	3	4	...
Ellis Hospital[1-3]	Schenectady, N. Y.	H. A. Snell	7,341	4,856	1	2	150
State *Univ. of New York Upstate Medical Center* Hosp.[1-3]	Syracuse, N. Y.	E. J. *Delmonico*	9,209	6,172	2	6	192
Grasslands Hospital[1-3]	Valhalla, N. Y.	H. F. Bishop	1,723	625	1	3	175
North Carolina Memorial Hospital	Chapel Hill, N. C.	D. A. Davis	2,265	2,000	2	4	145
Duke University Hospital[1-3]	Durham, N. C.	C. R. Stephen	9,249	8,327	6	11	100
North Carolina Baptist Hospital[1-3]	Winston-Salem, N. C.	R. L. Wall	5,462	1,616	..	..	...
Mercy Hospital[1-3]	Canton, Ohio	L. L. Frick	5,293	4,298	1	2	200
Christ Hospital[1]	Cincinnati	L. E. Larrick	10,413	3,058	1	2	200
City Hospital[1-3]	Cleveland	H. Kretchmer	3,572	1,630	..	4	213
Cleveland Clinic Hospital[1-3]	Cleveland	D. E Hale	7,434	4,610	3	6	175
Mount Sinai Hospital[1]	Cleveland	S. Katz	11,261	9,751	2	4	215
St. Luke's Hospital[1]	Cleveland	B. B. Sankey	13,440	6,486	2	4	180
University Hospitals[1-3]	Cleveland	R. A. Hingson	15,577	12,752	5	10	125
Ohio State University Hospitals							
University Hospitals[1-3]	Columbus, Ohio	J. J. Jacoby	10,677	8,178	10	19	150
Huron Road Hospital[1-3]	East Cleveland, Ohio	R. J. Whitacre	9,645	5,884	5	10	150
Marymount Hospital[3]	Garfield Heights, Ohio	N. G. De Piero	5,021	3,205	2	4	...
Youngstown Hospital[1-3]	Youngstown, Ohio	A. J. Fisher	14,515	6,358	2	4	175
University Hospitals[1-3]	Oklahoma City	H. A. Bennett	5,917	4,991	4	8	85
Univ. of Oregon Medical School Hospitals and Clinics[1-3]	Portland, Ore.	F. P. Haugen	5,403	2,744	3	6	...
George F. Geisinger Memorial Hospital[1-3]	Danville, Pa.	J. M. Schwab	5,111	965	2	4	125
Albert Einstein Medical Center—Southern Division[1-3]	Philadelphia	B. Goldstein	5,623	4,436	4	4	200
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	H. H. Stone	6,139	5,464	2	4	100
Hahnemann Medical College and Hospital[3]	Philadelphia	H. L. Ruth	10,078	2,806	6	14	75
Hospital of the University of Pennsylvania[1-3]	Philadelphia	R. Dripps	15,395	7,100	7	21	125
Pennsylvania Hospital[1-3]	Philadelphia	M. V. Troncelliti	9,274	5,111	2	2	100
Philadelphia General Hospital[1-3]	Philadelphia	E. H. Conner	5,960	2,256	3	6	112.86
Presbyterian Hospital[1-3]	Philadelphia	S. Schotz	5,810	5,023	2	4	100
Temple University Hospital[1-3]	Philadelphia	L. W. Krumperman	12,707	6,252	2	6	...
Allegheny General Hospital[1]	Pittsburgh	R. L. Patterson	12,782	5,123	6	6	200
Mercy Hospital[1-3]	Pittsburgh	F. F. Foldes	11,841	2,818	4	8	175
Montefiore Hospital[1-3]	Pittsburgh	L. David	6,030	4,875	2	2	125
St. Francis General Hospital and Rehabilitation Institute[1-3]	Pittsburgh	G. J. Thomas	10,766	4,740	1	3	200
Reading Hospital[1-3]	Reading, Pa.	M. Kerry	7,891	4,592	1	2	225
Robert Packer Hospital[1-3]	Sayre, Pa.	W. Brehm	7,179	3,219	2	4	150
Miriam Hospital[1-3]	Providence, R. I.	N. S. Rakatansky	3,374	1,400	1	1	200
Rhode Island Hospital[1-3]	Providence, R. I.	M. Saklad	9,535	4,227	1	4	100
Roper Hospital[1-3]	Charleston, S. C.	J. C. Doerr	6,356	3,709	1	2	83
Baroness Erlanger Hospital[1-3]	Chattanooga, Tenn.	F. S. Brannen	6,526	3,238	4	6	125
Vanderbilt University Hospital[1-3]	Nashville, Tenn.	B. H. Robbins	5,696	4,297	2	4	60
Baylor University Hospital[1-3]	Dallas, Texas	R. F. Courtin	18,530	14,969	1	2	125
Parkland Memorial Hospital[1-3]	Dallas, Texas	M. T. Jenkins	3,021	1,750	4	6	60
University of Texas Medical Branch Hospitals[1-3]	Galveston, Texas	C. R. Allen	6,207	5,214	5	11	...
Baylor University College of Medicine Affiliated Hospitals							
Veterans Admin. Hospital[1-3]	Houston, Texas	G. E. Bittenbender	4,616	820	2	4	...
Hermann Hospital[1]	Houston, Texas	L. F. Schuhmacher	17,206	5,173	2	4	100
Baptist Memorial Hospital	San Antonio, Texas	G. B. Ladd	5,996	4,273	1	2	150
Scott and White Memorial Hospitals[1-3]	Temple, Texas	C. H. Gillespie	5,775	3,970	2	4	250
Bishop [illegible]	Burlington, Vt.	J. Abajian	2,862	1,121	1	3	100
Mary [illegible]	Burlington, Vt.	J. Abajian	3,303	1,792	3	4	100
Medica [illegible] Division[1-3]	Richmond, Va.	W. E. Pembleton	11,728	2,081	..	5	75
Doctors Hospital[1-3]	Seattle	P. C. Kundahl	4,711	2,877	1	2	125
King County Hospital, Unit No. 1 (Harborview)[1]	Seattle	L. E. Morris	2,951	1,578	4	6	110
Virginia Mason Hospital[1-3]	Seattle	D. C. Moore	6,236	3,189	3	6	125
Tacoma General Hospital[1-3]	Tacoma, Wash.	J. J. Bonica	6,075	2,654	3	7	200
Ohio Valley General Hospital[1-3]	Wheeling, W. Va.	D. E. Greeneltch	6,786	4,750	2	4	300
University Hospitals[1]	Madison, Wis.	O. S. Orth	5,718	5,014	4	11	50
San Juan City Hospital[1-3]	San Juan, P. R.	F. J. Gonzalez	2,816	1,129	1	2	150

* One year provisional approval.

Numerical and other references will be found on page 363.

3. CARDIOVASCULAR DISEASES

The following services have been approved for one year of training by the Council and the Subspecialty Board for Cardiovascular Disease of the American Board of Internal Medicine.

Hospitals, 30; Assistant Residencies and Residencies, 53

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
FEDERAL							
UNITED STATES ARMY							
Letterman Army Hospital[1]	San Francisco	B. E. Pollock	380	..	..	1	...
Fitzsimons Army Hospital[1]	Denver	E. M. Goyette	387	6	..	..	...
Army Medical Center[1-3]	Washington, D. C.	T. W. Mattingly	598	53	2	2	...
Brooke Army Hospital[1-3]	San Antonio, Texas	W. J. Walker	459	39	..	2	...
UNITED STATES NAVY							
U. S. Naval Hospital[1-3]	Bethesda, Md.	A. Zikmund	...	32	1	1	...
VETERANS ADMINISTRATION							
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	D. S. Pocock	922	95	..	1	...
Veterans Admin. Hospital[1]	Hines, Ill.	L. A. Baker	1,246	93	1	1	...
Veterans Admin. Hospital[1-3]	Richmond, Va.	K. Plummer	908	34	..	2	...
NONFEDERAL							
George Washington University Hospital[1-3]	Washington, D. C.	J. M. Evans	443	40	..	3	150
Michael Reese Hospital[1-3]	Chicago	L. N. Katz	872	47	..	..	...
Indianapolis General Hospital[1-3]	Indianapolis	K. Kohlstaedt	...	..	..	1	163
Beth Israel Hospital	Boston	H. L. Blumgart	680	..	..	2	50
Henry Ford Hospital[1-3]	Detroit	J. W. Keyes	1,190	78	5	7	223
Irvington House[1-3]	Irvington-on-Hudson, N. Y.	A. C. DeGraff	300	..	..	3	250
Lenox Hill Hospital[1-3]	New York City	C. E. Kossmann	...	..	1	1	180
St. Luke's Hospital[1-3]	New York City	G. J. Coffin	...	..	2	2	125
St. Francis Hospital and Sanatorium for Cardiac Children[1-3]	Roslyn, L. I., N. Y.	L. M. Taran	270	2	3	3	250
Duke University Hospital[1-3]	Durham, S. C.	E. S. Orgain	309	16	..	3	300
Cincinnati General Hospital[1-3]	Cincinnati		517	60	..	..	...
Cleveland Clinic Hospital[1-3]	Cleveland	I. H. Page	1,100	27	1	2	175
Ohio State University Hospitals University Hospitals[1-3]	Columbus, Ohio	R. W. Kissane	...	..	..	1	225
White Cross Hospital[1-3]	Columbus, Ohio	R. W. Kissane	472	13	1	1	275
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	S. Bellet	258	2	2	2	...
Pennsylvania Hospital[1-3]	Philadelphia	J. B. Van der Veer	441	2	2	2	20
Philadelphia General Hospital[1-3]	Philadelphia	S. Bellet	...	..	3	3	118
Temple University Hospital[1-3]	Philadelphia	R. A. Kern	...	..	1	1	...
Presbyterian Hospital[1-3]	Pittsburgh	A. Koenig	566	34	1	1	125
St. Francis General Hospital and Rehabilitation Institute[1-3]	Pittsburgh	A. P. D'Zmura	4,624	..	..	1	250
Rhode Island Hospital[1-3]	Providence, R. I.	F. B. Cutts	4,770	..	1	1	150
University of Texas Medical Branch Hospitals[1-3]	Galveston, Texas	G. R. Herrmann	...	..	..	3	...

4. CONTAGIOUS DISEASES

The following services have been approved for one year of training by the Council on Medical Education and Hospitals.

Hospitals, 10; Assistant Residencies and Residencies, 29

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
NONFEDERAL							
Children's Hospital[1-3]	San Francisco	E. B. Shaw	456	11	1	1	125
Cook County Hospital[1-3]	Chicago	A. L. Hoyne	949	38	1	1	...
Municipal Contagious Disease Hospital[1]	Chicago	H. W. Spies	2,001	28	..	..	...
Massachusetts Memorial Hospitals[1-3]	Boston	L. Weinstein	738	12	..	4	25
Worcester City Hospital[1-3]	Worcester, Mass.	E. Budnitz	676	9	1	1	225
Herman Kiefer Hospital[1-3]	Detroit	D. C. Young	1,587	44	3	3	505
Essex County Hospital for Contagious Diseases[1-3]	Belleville, N. J.	E. L. Smith	1,325	16	2	2	200
Willard Parker Hospital[1-3]	New York City	J. L. Kohn	5,729	18	10	10	157
City Hospital[1-3]	Cleveland	F. C. Robbins	937	24	4	5	150
Philadelphia General Hospital—Northern Division[1-3]	Philadelphia	A. C. La Boccetta	1,072	7	2	2	...

5. DERMATOLOGY AND SYPHILOLOGY

The following services have been approved by the Council and the American Board of Dermatology and Syphilology, through the Residency Review Committee for Dermatology and Syphilology, as offering acceptable training in the specialty.

Hospitals, 75; Assistant Residencies and Residencies, 253

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL								
UNITED STATES ARMY								
Army Medical Center[1-3]	Washington, D. C.	F. H. Grauer	314	9,665	2	7	3	...
Brooke Army Hospital[1-3]	San Antonio, Texas	M. P. Moursund	238	12,992	1	2	3	...
UNITED STATES NAVY								
U. S. Naval Hospital[1]	San Diego, Calif.	J. H. Lockwood	514	14,088	..	..	2	...
U. S. Naval Hospital[1]	Philadelphia	C. D. Bell	141	6,493	..	..	2	...
UNITED STATES PUBLIC HEALTH SERVICE								
U. S. Public Health Service Hospital[1-3]	Stapleton, S. I., N. Y.	B. J. Chester	519	9,391	1	3	2	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE								
Freedmen's Hospital[1-3]	Washington, D. C.	C. W. Freeman	26	4,527	1	1	2	...

Numerical and other references will be found on page 363.

5. DERMATOLOGY AND SYPHILOLOGY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
VETERANS ADMINISTRATION								
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	B. F. Klaumann	432	5,464	1	3	3	...
Veterans Admin. Hospital [1-3]	Los Angeles	E. T. Wright	393	10,244	3	7	3	...
Veterans Admin. Hospital [1]	Hines, Ill.	E. A. Oliver	876	.....	1	2	1	...
Veterans Admin. Hospital [1-3]	New Orleans	C. B. Kennedy	47	455	1	1	1	...
Veterans Admin. Hospital [1-3]	Fort Howard, Md.	M. Sullivan	82	11	1	2	3	...
Veterans Admin. Hospital [1-3]	Minneapolis	H. E. Michelson	196	113	1	2	3	...
Veterans Admin. Hospital [1-3]	New York City (Bronx)	O. Canizares	410	2,788	1	3	3	...
[1-3]	Philadelphia	....	154	.....	..	1	1	...
[1-3]	Milwaukee (Wood)	J. Kanter	496	230	1	2	2	...
NONFEDERAL								
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	R. O. Noojin	132	2,389	1	3	3	108
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	P. G. Reque	109	4,904	1	1	1	225
Los Angeles County General Hospital [1]	Los Angeles	A. F. Hall	660	15,848	2	3	3	200
White Memorial Hospital [1-3]	Los Angeles	M. Couperus	32	4,608	1	2	2	146
Stanford University Hospitals [1-3]	San Francisco	E. M. Farber	72	8,455	2	5	3	80
University of California Hospital [1-3]	San Francisco	R. B. Rees, Jr.	58	.....	2	4	3	87
University of Colorado Medical Center								
Colorado General Hospital [1-3]	Denver	O. S. Philpott	17	306	1	2	1	150
Georgetown University Hospital [3]	Washington, D. C.	F. J. Eichenlaub	24	1,542	1	2	2	20
Cook County Hospital [1-3]	Chicago	S. M. Bluefarb	720	7,580	3	3	3	...
Michael Reese Hospital [1-3]	Chicago	A. Buchholz	174	3,180	1	1	1	75
Northwestern University Medical Center [1]	Chicago	H. Rattner	...	2,883	2	6	3	...
University of Chicago Clinics [1-3]	Chicago	S. Rothman	193	9,100	3	9	3	175
University of Illinois Research and Educational Hospitals [1]	Chicago	F. E. Senear	34	10,507	1	1	3	...
Indianapolis General Hospital [1-3]	Indianapolis	J. Dalton	70	9,135	1	3	3	165
University Hospitals [1-3]	Iowa City	R. Nomland	322	3,363	1	3	3	118
University of Kansas Medical Center [1-3]	Kansas City, Kan.	R. Sutton	19	544	1	1	1	125
Charity Hospital of Louisiana								
Independent Unit [1]	New Orleans	V. M. Henington	38	6,886	1	2	3	100
Louisiana State University Unit [1]	New Orleans	C. B. Kennedy	179	11,137	1	3	3	100
Tulane University Unit [1]	New Orleans	G. E. Burch	159	12,918	1	3	3	100
University Hospital [1-3]	Baltimore	H. M. Robinson, Jr.	...	732	..	2	2	50
Boston City Hospital [1-3]	Boston	B. Appel	151	20,653	1	3	3	112
Massachusetts General Hospital [1-3]	Boston	C. N. Frazier	372	9,885	1	4	3	66.67
Massachusetts Memorial Hospitals [1-3]	Boston	H. Mescon	...	1,842	1	2	1	50
University Hospital [1-3]	Ann Arbor, Mich.	A. C. Curtis	561	6,301	4	12	3	145
Henry Ford Hospital [1-3]	Detroit	C. S. Livingood	159	20,959	2	6	3	225
Receiving Hospital [1-3]	Detroit	L. W. Shaffer	8	5,770	1	6	3	200
Minneapolis General		C. W. Laymon	180	3,687	1	2	3	182
University of Minnesc		H. E. Michelson	146	1	1	4	3	162
Mayo Foundation [1-3]	Rochester, Minn.	L. A. Brunsting	708	21,233	6	16	3	150
Ancker Hospital [1-3]	St. Paul	J. F. Madden	243	2,894	..	1	3	181
Barnes Hospital [1-3]	St. Louis	C. W. Lane	...	.....	1	3	3	50
St. Mary's Group of Hospitals [1-3]	St. Louis	G. V. Stryker	97	4,103	1	3	3	100
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	W. C. Lobitz, Jr.	348	6,597	1	3	3	188
Kings County Hospital								
County Service	Brooklyn	C. Chiramonte	...	.....	2	2	1	...
Edward J. Meyer Memorial Hospital [1]	Buffalo	E. D. Osborne	104	.....	1	3	3	179
Bellevue Medical Center								
Division IV—New York University Post-Graduate Medical School [1-3]	New York City	M. B. Sulzberger	366	22,914	2	7	3	71
Mount Sinai Hospital [1]	New York City	S. M. Peck	100	7,274	1	2	2	50
New York City Hospital	New York City	F. P. Lowenfish	498	7,435	1	2	1	104
New York Hospital [1-3]	New York City	G. Lewis	...	17,382	1	1	3	...
New York Polyclinic Medical School and Hospital [1-3]	New York City	A. C. Cipollaro	10	5,925	1	3	3	...
New York University-Bellevue Medical Center								
University Hospital (Skin and Cancer) [1-3]	New York City	M. Sulzberger	205	85,457	2	6	3	50
Presbyterian Hospital [1-3]	New York City	C. T. Nelson	...	35,496	1	3	3	208
St. Luke's Hospital [1-3]	New York City	L. P. Barker	595	9,003	1	1	2	75
Duke University Hospital [1-3]	Durham, N. C.	J. L. Callaway	196	4,790	1	3	3	42
Cincinnati General Hospital [1-3]	Cincinnati	L. Goldman	203	7,271	3	8	3	100
City Hospital [1-3]	Cleveland	B. P. Persky	198	4,734	1	3	3	150
Cleveland Clinic Hospital [1-3]	Cleveland	E. W. Netherton	377	17,561	1	3	3	175
University Hospitals [1-3]	Cleveland	J. R. Driver	108	4,657	1	2	3	125
University Hospitals [1-3]	Oklahoma City	C. P. Bondurant	40	1,986	2	2	1	300
University of Oregon Medical School Hospitals and Clinics [1-3]	Portland, Ore.	T. B. Fitzpatrick	117	4,558	1	3	3	...
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	H. Beerman	68	4,068	1	3	2	...
Hahnemann Medical College and Hospital [3]	Philadelphia	C. Burgoon	20	4,642	1	2	1	75
Hospital of the University of Pennsylvania [1-3]	Philadelphia	D. M. Pillsbury	118	8,988	4	12	3	...
Jefferson Medical College Hospital [1-3]	Philadelphia	H. B. Decker	12	5,665	1	1	1	...
Pennsylvania Hospital [1-3]	Philadelphia	H. Beerman	...	3,923	1	1	1	20
Philadelphia General Hospital [1-3]	Philadelphia	C. F. Burgoon	231	3,638	1	1	1	113
Skin and Cancer Hospital [1-3]	Philadelphia	C. S. Wright	509	32,485	4	4	2	50
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	J. F. Mullins	107	7,627	2	6	3	...
Baylor University College of Medicine Affiliated Hospitals								
Jefferson Davis Hospital [1-3]	Houston, Texas	E. R. Seale	1	2,577	1	1	1	...
University of Virginia Hospital [1-3]	Charlottesville, Va.	E. P. Cawley	239	8,531	2	6	3	50
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va.	R. W. Fowlkes	24	6,253	..	1	1	100
University Hospitals [1]	Madison, Wis.	S. A. M. Johnson	189	4,084	1	1	1	50

6. GASTROENTEROLOGY

The following services have been approved for one year of training by the Council and the Subspecialty Board for Gastroenterology of the American Board of Internal Medicine.

Hospitals, 24; Assistant Residencies and Residencies, 64

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
UNITED STATES ARMY							
Letterman Army Hospital [1]	San Francisco	J. Sullivan	52	..	..	1	...
Army Medical Center [1-3]	Washington, D. C.	E. D. Palmer	715	7	2	2	...
Brooke Army Hospital [1-3]	San Antonio, Texas	R. S. Nelson	567	15	..	1	...

Numerical and other references will be found on page 363.

6. GASTROENTEROLOGY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Residencies Total Offered [8]	Beginning Stipend (Month)
VETERANS ADMINISTRATION							
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	A. E. Dagradi	878	36	..	1	...
Veterans Admin. Hospital[1-3]	Los Angeles	J. A. Halsted	580	13	..	1	...
Veterans Admin. Hospital[1-3]	Memphis, Tenn.	M. L. Gompertz	1,139	10	1	2	...
Veterans Admin. Hospital[1-3]	Richmond, Va.	K. Plummer	770	10	..	2	...
Veterans Admin. Hospital[1-3]	Milwaukee (Wood)	M. Garry	958	32	1	1	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Residencies Total Offered [8]	Beginning Stipend (Month)
Cook County Hospital[1-3]	Chicago		...	..	..	..	...
Michael Reese Hospital[1-3]	Chicago	H. Necheles	240	2	2	2	...
Touro Infirmary[1]	New Orleans	L. Ochs	629	..	1	1	100
Beth Israel Hospital[1-3]	Boston	B. M. Banks	...	..	..	1	167
Lahey Clinic[1-3]	*Boston*	*S. M. Jordan*	1,376	..	8	12	175
Massachusetts Memorial Hospitals[1-3]	Boston	F. Ingelfinger	...	..	1	4	...
Henry Ford Hospital[1-3]	Detroit	J. G. Mateer	922	14	5	6	225
Mayo Foundation[1-3]	Rochester, Minn.		...	..	..	..	...
Mount Sinai Hospital[1-3]	New York City	A. Gutman	...	..	4	5	50
New York Polyclinic Medical School and Hospital[1-3]	New York City	S. Weiss	115	2	1	1	...
Duke University Hospital[1-3]	Durham, N. C.	J. M. Ruffin	316	3	..	2	250
Ohio State University Hospitals							
University Hospitals[1-3]	Columbus, Ohio	C. J. DeLor	...	..	..	1	225
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	H. L. Bockus	758	5	3	8	150
Hospital of the University of Pennsylvania[1-3]	Philadelphia	T. Machella	...	..	2	6	...
Jefferson Medical College Hospital[1-3]	*Philadelphia*	*J. E. Deitrick*	...	..	1	2	...
Temple University Hospital[1-3]	Philadelphia	H. Shay	...	..	1	8	...

7. GENERAL PRACTICE

The following services have been approved by the Council and the American Academy of General Practice, through the Residency Review Committee for General Practice, as offering acceptable training in the specialty.

Hospitals, 159; Assistant Residencies and Residencies, 628

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
UNITED STATES NAVY							
U. S. Naval Hospital[1]	San Diego, Calif.	A. H. Staderman	.....	...	..	..	...
U. S. Naval Hospital[1]	Chelsea, Mass.	R. C. Parker	.....	...	2	2	...
U. S. Naval Hospital[1-3]	Portsmouth, Va.		.....	...	1	2	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Good Samaritan Hospital[3]	Phoenix, Ariz.	L. Dagres	7,283	111	2	2	250
Maricopa County General Hospital[1-3]	Phoenix, Ariz.	W. J. Rogers	.....	...	..	6	250
St. Mary's Hospital and Sanitorium[1-3]	Tucson, Ariz.	F. C. Gregg	16,592	110	2	6	200
St. Michael's Hospital[3]		W. B. Harrell	7,207	39	1	2	225
General Hospital of Riverside County[1]		H. Stone	2,934	43	5	5	376
Kern General Hospital[1]		J. J. Cawley	.....	...	8	8	325
Los Angeles County General Hospital[1]	Los Angeles	P. Berman	.....	...	6	6	200
Methodist Hospital of Southern California[1-3]	Los Angeles	W. S. Graf-R. L. Taw	2,686	21	2	2	175
Contra Costa County Hospital[1-3]	Martinez, Calif.	H. Flanders	6,705	127	10	10	470
Kaiser Foundation Hospital[1-3]	Oakland, Calif.	H. S. Holmboe	.....	...	4	4	175
Sequoia Hospital[1]	*Redwood City, Calif.*	*R. Willey*	7,395	51	..	4	300
Sacramento County Hospital[1-3]	Sacramento, Calif.	L. W. Farrell	12,909	588	8	12	...
Monterey County Hospital[1]	Salinas, Calif.	W. A. Cassidy	3,332	122	7	7	350
St. Francis Memorial Hospital[1-3]	San Francisco	P. R. Westdahl	2,790	57	7	7	300
Community Hospital of San Mateo County[1-3]	San Mateo, Calif.	J. P. Sweeney	.....	...	8	8	300
Sonoma County Hospital[1]	Santa Rosa, Calif.	H. D. Stalley	8,961	107	8	8	425
Tulare County General Hospital[1]	Tulare, Calif.	J. Feldmayer	2,814	93	7	7	333
Glockner-Penrose Hospital[1-3]	Colorado Springs, Colo.	C. S. Gydesen	.....	...	2	4	200
St. Francis Hospital[1-3]	Colorado Springs, Colo.	E. H. Vincent	4,414	67	2	2	210
University of Colorado Medical Center							
Colorado General Hospital[1-3]	Denver	C. W. Eisele	.....	...	8	24	150
Denver General Hospital[1-3]	Denver	C. W. Eisele	.....	...	..	..	...
Greenwich Hospital[1-3]	Greenwich, Conn.	G. Carter	7,531	111	1	2	150
Charlotte Hungerford Hospital[1-3]	Torrington, Conn.	M. E. Globbe	5,189	70	2	4	100
Wilmington General Hospital[1-3]	Wilmington, Del.	F. S. Skura	7,912	59	8	10	250
Eastern Dispensary and Casualty	C.	J. R. Young	4,639	29	10	20	300
Halifax District Hospital[1-3]	la.	F. A. Sica	6,499	142	..	8	320
St. Luke's Hospital[1]	Jacksonville, Fla.	E. E. Leitner	.....	...	1	2	225
St. Vincent's Hospital[1-3]	Jacksonville, Fla.	L. M. Wachtel	.....	...	2	4	135
Baptist Hospital	Pensacola, Fla.		.....	...	..	..	...
Sacred Heart Hospital[1-3]	Pensacola, Fla.	T. L. Hoyt	5,782	32	3	3	200
Grady Memorial Hospital[1-3]	Atlanta, Ga.	E. B. Ferris, Jr.	.....	...	8	8	20
Columbus City Hospital[1-3]	Columbus, Ga.	H. Brill	10,448	114	4	4	250
Macon Hospital	Macon, Ga.	E. C. McMillan	13,686	...	14	21	200
St. Joseph Hospital[1-3]	Alton, Ill.	H. P. McCuistion	8,374	...	4	4	250
MacNeal Memorial Hospital[1]	Berwyn, Ill.	J. Hunt	2,298	62	6	5	225
Grant Hospital[1-3]	Chicago	K. S. Gustin	3,321	41	1	1	225
Illinois Masonic Hospital[1-3]	Chicago	J. S. Poticha	.....	...	1	1	115
St. Mary of Nazareth Hospital[1]	Chicago	S. A. Motto	11,173	119	1	2	150
South Shore Hospital[1-3]	Chicago	S. H. Gumbiner	6,455	66	2	2	250
Decatur and Macon County Hospital[3]	Decatur, Ill.	C. P. Birk	3,760	34	2	2	275
Methodist Hospital of Central Illinois[1-3]	Peoria, Ill.	F. C. Green	4,044	88	3	3	200
	Rockford, Ill.	C. W. Fredberg	7,938	112	1	2	...
	Beech Grove, Ind.	J. R. Moriarity	9,407	68	4	4	300
	Gary, Ind.	M. Shellhouse	15,235	177	2	2	200
	Hammond, Ind.	F. G. Rudolph	14,837	114	2	4	300
	Indianapolis	J. F. Riggs	.....	...	2	4	273
	Lafayette, Ind.	G. W. Herrold	6,232	80	1	8	175
	South Bend, Ind.	B. A. Blasini	10,044	131	2	2	250
spital[1-3]	Cedar Rapids, Iowa	S. M. Lehr	11,634	148	6	6	250
Hospital[1]	Des Moines, Iowa	D. H. Kast	.....	...	..	1	175
	Iowa City	W. B. Bean	.....	...	6	6	118
	Wichita, Kan.	C. P. McCoy	4,070	34	3	6	275
Wesley Hospital[1-3]	Wichita, Kan.	J. Tiller	4,356	29	1	1	150
St. Anthony Hospital	Louisville, Ky.	J. G. Rulander	.....	...	1	1	250

Numerical and other references will be found on page 363.

7. GENERAL PRACTICE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Baton Rouge General Hospital[1]	Baton Rouge, La.	J. M. Hopper	13,838	49	2	3	300
Lafayette Charity Hospital[1]	Lafayette, La.	E. Hull	.....	17	18	18	325
St. Patrick's Hospital[1-3]	Lake Charles, La.	G. E. Barham	8,445	36	2	2	...
Huey P. Long Charity Hospital	Pineville, La.	J. Deming	8,781	93	11	11	325
Bon Secours Hospital[3]	Baltimore	F. J. Geraghty	717	16	1	2	260
University Hospital	Baltimore	T. E. Woodward	1,664	158	2	5	50
Suburban Hospital[1-3]	Bethesda, Md.	W. T. Gibb	.....	...	2	2	200
St. Anne's Hospital[3]	Fall River, Mass.	J. C. Corrigan	4,459	31	2	2	150
Cooley Dickinson Hospital[1-3]	Northampton, Mass.	L. N. Durgin	7,917	71	4	4	150
Lynn Hospital	Detroit	E. W. Erickson	4,493	12	4	8	425
Saratoga General Hospital[3]	Detroit	G. T. Brown	7,256	26	3	3	350
Hurley Hospital[1]	Flint, Mich.	L. G. Bateman	.....	...	2	2	325
McLaren General Hospital[1]	Flint, Mich.	W. W. Bruce	10,584	91	3	4	325
St. Joseph Hospital[1-3]	Flint, Mich.	J. J. Gutow	11,874	73	6	12	400
Borgess Hospital[1-3]	Kalamazoo, Mich.	F. Doyle	3,125	48	4	8	225
Mercy Hospital[1]	Muskegon, Mich.	A. L. Benedict	5,561	38	2	2	300
St. Joseph Mercy Hospital[1-3]	Pontiac, Mich.	E. J. Dobski	.....	...	4	4	325
St. Luke's Hospital[1-3]	Saginaw, Mich.	H. E. Mayne	6,726	...	2	2	300
St. Mary's Hospital	Saginaw, Mich.	T. E Fleschner	5,072	51	1	2	350
James Decker Munson Hospital[1-3]	Traverse City, Mich.	F. G. Swartz	6,411	68	2	4	300
Wyandotte General Hospital[1]	Wyandotte, Mich.	E. J. Knaggs	10,065	84	7	7	400
Fairview Hospital[1-3]	Minneapolis	S. P. Stone	2,632	82	3	3	300
Lutheran Deaconess Home and Hospital[1-3]	Minneapolis	L. A. Benesh	8,902	54	..	3	200
Mount Sinai Hospital[1-3]	Minneapolis	P. Gordon	.....	...	4	4	200
Midway Hospital[3]	St. Paul	A. E. Ritt	4,435	70	2	2	...
Mercy Hospital-Street Memorial[1-3]	Vicksburg, Miss.	L. J. Clark	5,474	23	2	2	225
Missouri Methodist Hospital[1-3]	St. Joseph, Mo.	O. W. D. Craig	3,709	48	2	2	225
Alexian Brothers Hospital[3]	St. Louis	A. D. Hoffmann	3,004	57	3	3	200
St. Anthony's Hospital[1-3]	St. Louis	W. T. Gunn	6,372	20	2	4	150
Butte Community Memorial Hospital[1-3]	Butte, Mont.	G I.	5,211	38	..	5	300
Hunterdon Medical Center[1]	Flemington, N. J.	E. D.	2,916	72	2	4	150
Mountainside Hospital[1-3]	Montclair, N. J.	C. F. Turner	....,	...	1	2	175
Morristown Memorial Hospital[1-3]	Morristown, N. J.	J. S. Forbes	.....	...	..	1	185
Princeton Hospital	Princeton, N. J.	B. B. Scassera	4,448	73	2	4	300
Overlook Hospital[3]	Summit, N. J.	J. F. Johnson	8,816	111	1	1	200
Mercy Hospital[1-3]	Buffalo	C. F. Banas	12,787	193	3	3	250
Millard Fillmore Hospital[1-3]	Buffalo	M. Cheplove	.. ..	...	1	2	255
St. Joseph's Hospital[1-3]	Far Rockaway, N. Y.	F. Herrman	7,039	43	10	10	250
Benedictine Hospital[1-3]	Kingston, N. Y.	E. F. Shea-J. A. Olivet	5,044	44	2	2	250
Kingston Hospital	Kingston, N. Y.	H. L Rakov	5,460	69	2	2	300
Our Lady of Victory Hospital[3]	Lackawanna, N. Y.	L. Makarewicz	4,657	50	1	1	175
Mercy Hospital	Charlotte, N. C.	C. W. Robinson	3,766	43	3	3	175
City Memorial Hospital[1-3]	Winston-Salem, N. C.	J. R. Bender	13,861	98	2	2	300
Akron General Hospital[1-3]	Akron, Ohio	G. K. Parke	.....	...	4	4	250
City Hospital[1-3]	Akron, Ohio	D. E. Leonard	.....	...	2	4	250
St. Thomas Hospital[1-3]	Akron, Ohio	K. Weidenthal	2,560	...	2	4	250
Mercy Hospital[1-3]	Canton, Ohio	G. C. Dowell	13,972	87	1	2	200
Christ Hospital[1]	Cincinnati	K. E. Martin	.....	...	4	8	200
Good Samaritan Hospital[1-3]	Cincinnati	W. Schmidter	.....	...	4	4	175
Doctors Hospital[1-3]	Cleveland Heights, Ohio	H. W. Salter	.....	...	2	4	200
White Cross Hospital[1-3]	Columbus, Ohio	W. P. Smith, Jr.	1,580	27	1	1	275
Euclid-Glenville Hospital[1-3]	Euclid, Ohio	J. B. Price	8,689	72	6	6	200
Lima Memorial Hospital[1-3]	Lima, Ohio	D. L. Becker	10,024	95	5	8	275
St. Rita's Hospital[1-3]	Lima, Ohio	J. A. Glorioso	1,754	61	1	2	225
Mercy Hospital[1-3]	Toledo, Ohio	C. R. Forrester	4,589	35	1	2	250
St. Vincent's Hospital[1-3]	Toledo, Ohio	M. A. Schnitker	.....	...	1	1	225
Toledo Hospital[1-3]	Toledo, Ohio	C. S Mundy	2,394	34	1	2	200
Youngstown Hospital[1-3]	Youngstown, Ohio	J. L. Fisher	8,213	184	1	2	175
University Hospitals[1-3]	Oklahoma City	I. H. Brown	.....	...	12	16	85
St. Luke's Hospital[1-3]	Bethlehem, Pa.	R. K. Shields	13,523	182	1	1	275
Bradford Hospital[1-3]	Bradford, Pa.	C. L. Luckett	1,826	33	3	8	250
Chester Hospital[1-3]	Chester, Pa.	....	9,389	168	2	4	350
George F. Geisinger Memorial Hospital[1-3]	Danville, Pa.	W. J. Stainsby	2,224	60	1	2	125
Thomas M. Fitzgerald Mercy Hospital[1-3]	Darby, Pa.	D. T. Sullivan	12,700	101	1	1	200
St. Joseph's Hospital[1-3]	Lancaster, Pa.	C. H. Witmer	2,282	98	2	2	300
Sacred Heart Hospital[1]	Norristown, Pa.	J. J. M'Shea	6,098	69	4	4	400
St. John's General Hospital[1-3]	Pittsburgh	D. B. Wolfe	.....	...	1	1	300
Community General Hospital[1-3]	Reading, Pa.	C. S. Kring	2,791	45	..	1	300
Sharon General Hospital[1-3]	Sharon, Pa.	J. J. Bellas	12,859	70	5	5	200
Memorial Hospital[1-3]	Pawtucket, R. I.	E. J. Mara	8,170	85	1	2	250
Greenville General Hospital[1-3]	Greenville, S. C.	L. W. Stoneburner	4,579	136	3	6	125
Spartanburg General Hospital	Spartanburg, S. C.	R. A. Way	17,388	133	3	3	200
Sacred Heart Hospital[1]	Yankton, S. Dak.	T. H. Sattler	6,780	68	4	4	...
St. Mary's Memorial Hospital[1-3]	Knoxville, Tenn.	J. Raulston	.....	...	1	2	300
Madison Sanitarium and Hospital[1-3]	Madison College, Tenn.	J. C. Gant	5,982	20	3	3	325
John Peter Smith Hospital[1-3]	Fort Worth, Texas	L. J. Levy	4,999	150	5	5	150
All Saints Hospital	Fort Worth, Texas	J. A. Hallmark	6,671	68	4	4	250
St. Mary's Infirmary[1-3]	Galveston, Texas	E. S. McLarty, Sr.	7,702	49	5	10	...
Nan Travis Memorial Hospital[1]	Jacksonville, Texas	J. M Travis	5,422	26	1	2	250
Shannon West Texas Memorial Hospital[1-3]	San Angelo, Texas	P. J. Byars	5,574	74	2	2	300
Baptist Memorial Hospital[1-3]	San Antonio, Texas	A. Breuer	14,930	118	1	2	150
Robert B. Green Memorial Hospital[1-3]	San Antonio, Texas	W. W. Bondurant	.....	...	1	2	150
Kings Daughters Hospital[1-3]	Temple, Texas	S. W. Shibler	2,979	24	1	2	300
Wichita General Hospital[1]	Wichita Falls, Texas	W. L. Rector	7,458	51	3	3	300
Thomas D. Dee Memorial Hospital[1-3]	Ogden, Utah	H. C. Stranquist	4,103	...	3	5	250
Riverside Hospital[1-3]	Newport News, Va.	S. H. Mirmelstein	2,257	29	1	2	250
De Paul Hospital[1-3]	Norfolk, Va.	L. E. Jones, Jr.	11,197	141	1	2	200
Norfolk General Hospital[1-3]	Norfolk, Va.	J. G. Price	.....	...	2	2	125
Retreat for the Sick[3]	Richmond, Va.	G. Vranian	246	6	2	3	200
Sheltering Arms Hospital[1-3]	Richmond, Va.	A. Klein	151	18	1	1	250
Louise Obici Memorial Hospital[1-3]	Suffolk, Va.	W. N. Eddy	.....	...	..	1	300
Providence Hospital[1]	Seattle	B. T. Fitzmaurice	.....	...	4	6	200
Sacred Heart Hospital[1-3]	Spokane, Wash.	R. M. O'Brien	25,041	161	4	4	200
Bluefield Sanitarium[3]	Bluefield, W. Va.	H. F. Warden, Jr.	1,994	31	4	4	500
Charleston General Hospital[1-3]	Charleston, W. Va.	W. Barber	.....	...	2	2	175
Kanawha Valley Hospital	Charleston, W. Va.	R. J. Jones	1,460	...	1	1	200
Memorial Hospital[1-3]	Charleston, W. Va.	J. W. Hash	.....	...	1	1	225
Camden Clark Memorial Hospital[1-3]	Parkersburg, W. Va.	J. J. Stark	.....	...	1	2	200
Ohio Valley General Hospital[1-3]	Wheeling, W. Va.	R. H. Lewellyn	2,595	25	2	4	300
Evangelical Deaconess Hospital[1-3]	Milwaukee	L. M. Peters	1,081	87	2	2	250
Milwaukee Hospital[1-3]	Milwaukee	S. M. Evans	.....	...	1	1	195
St. Michael Hospital[1-3]	Milwaukee	N. G. Bauch	5,095	37	3	3	275

Numerical and other references will be found on page 363.

8. INTERNAL MEDICINE

The following services have been approved by the Council, the American Board of Internal Medicine, and the American College of Physicians through the Residency Review Committee for Internal Medicine as offering acceptable training in the specialty under any of the several programs leading to eligibility for examination by the American Board of Internal Medicine.

Hospitals, 744; Assistant Residencies and Residencies, 4,862

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital [1]	San Francisco	W. C. Berry	2,670	..	6	16	3	...
Fitzsimons Army Hospital [1]	Denver	R. A. Radke	1,368	12	..	..	3	...
Army Medical Center [1-3]	Washington, D. C.	F. W. Pruitt	1,629	35	7	22	3	...
Valley Forge Army Hospital [1]	Phoenixville, Pa.	R. P. Johnson	1,827	70	2	6	3	...
Brooke Army Hospital [1-3]	San Antonio, Texas	R. E. Blount	8,652	81	7	19	3	...
Madigan Army Hospital	Fort Lewis, Wash.	W. S. George	943	7	..	..	1	...
Tripler Army Hospital [1]	Honolulu, T. H.	D. J. Sheehan	5,135	..	4	10	3	...
UNITED STATES AIR FORCE								
U. S. Air Force Hospital [1-3]	Belleville, Ill.	E. D. Bayrd	2,401	18	1	1	1	...
UNITED STATES NAVY								
U. S. Naval Hospital [1]	Oakland, Calif.	J. H. Ward, Jr.	1,681	54	..	..	3	...
U. S. Naval Hospital [1]	San Diego, Calif.	A. L Lawler	2,481	50	..	..	3	...
U. S. Naval Hospital [1-3]	Great Lakes, Ill.	V. G. Colvin	2,184	19	1	2	2	...
U. S. Naval Hospital [1-3]	Bethesda, Md.	A. Zikmund	3,080	24	..	7	3	...
U. S. Naval Hospital [1]	Chelsea, Mass.	R. C. Parker	1,635	12	2	5	3	...
U. S. Naval Hospital [1]	St. Albans, N. Y.	L. E. Bach	2,489	24	..	..	3	...
U. S. Naval Hospital [1]	Philadelphia	L. J. Pope	2,659	76	..	..	3	...
U. S. Naval Hospital [1-3]	Portsmouth, Va.	E. F. Kline	.....	..	2	2	1	...
UNITED STATES PUBLIC HEALTH SERVICE								
U. S. Public Health Service Hospital [1-3]	San Francisco	A. A. Doerner	2,112	44	1	3	3	...
U. S. Public Health Service Hospital [1-3]	New Orleans	R. H. Linn	1,677	27	1	3	3	...
U. S. Public Health Service Hospital [1]	Baltimore	C. G. Spicknall	1,676	37	2	6	3	...
National Institutes of Health—Clinical Center [1-3]	Bethesda, Md.	L. Terry	242	7	..	8	1	...
U. S. Public Health Service Hospital	Boston	W. H. Stimson	1,285	27	1	3	3	...
U. S. Public Health Service Hospital [1-3]	Stapleton, S. I., N. Y.	V. J. Dorset	2,009	70	3	9	3	...
U. S. Public Health Service Hospital	Seattle	J. G. Telfer	1,654	47	1	3	3	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE								
Freedmen's Hospital [1-3]	Washington, D. C.	J. B. Johnson	966	80	4	9	..	...
VETERANS ADMINISTRATION								
Veterans Admin. Hospital [1-3]	Birmingham, Ala.	T. J. Reeves	392	16	8	18	3	...
Veterans Admin. Hospital [1]	Tuskegee, Ala.	E. T. Odom	1,593	79	6	12	3	...
Veterans Admin. Hospital [1-3]	Little Rock, Ark.	H. R. Hipp	2,546	85	2	6	3	...
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	D. W. Leik	2,045	136	9	27	3	...
Veterans Admin. Hospital [1-3]	Los Angeles	R. O. Egeberg	5,500	417	20	54	3	...
Veterans Admin. Hospital [1]	San Francisco	F. M. Willett	1,600	148	14	23	2	...
Veterans Admin. Hospital [1-3]	Denver	T. P. Sears	2,601	107	8	19	3	...
Veterans Admin. Hospital	Newington, Conn.	P. Lipton	1,361	66	1	3	3	...
Veterans Admin. Hospital [1-3]	West Haven, Conn.	P. Kunkel	484	35	10	19	2	...
Veterans Admin. Hospital [1-3]	Washington, D. C.	L. K. Alpert	2,032	146	5	13	3	...
Veterans Admin. Hospital [1-3]	Coral Gables, Fla.	J. M. Rumball	2,402	182	5	15	3	...
Veterans Admin. Hospital [1]	Atlanta, Ga.	J. H. Peters	2,127	107	9	14	3	...
Veterans Admin. Hospital [1]	Augusta, Ga.	J. G. Bohorfoush	1,706	47	3	9	2	...
Veterans Admin. Research Hospital [1]	Chicago	(See Northwestern University Medical Center)						
Veterans Admin. (West Side) Hospital [1-3]	Chicago	H. J. Zimmerman	1,597	67	8	20	2	...
Veterans Admin. Hospital [1]	Hines, Ill.	L. A. Baker	3,488	266	14	42	3	...
Veterans Admin. Hospital [1]	Indianapolis	W. A. Christian	1,897	172	3	10	3	...
Veterans Admin. Hospital [1]	Des Moines, Iowa	J. C. Parsons	2,382	81	4	11	3	...
Veterans Admin. Hospital [1-3]	Iowa City	W. M. Kirkendall	1,666	76	6	14	3	...
Veterans Admin. Hospital [1-3]	Topeka, Kan.	R. Chess	1,200	58	2	6	3	...
Veterans Admin. Hospital [1-3]	Wadsworth, Kan.	I. Kass	1,212	151	2	4	3	...
Veterans Admin. Hospital [1-3]	Wichita, Kan.	D. Givner	984	58	2	2	3	...
Veterans Admin. Hospital [1-3]	Louisville, Ky.	J. R. Gott, Jr.	1,199	80	4	12	3	...
Veterans Admin. Hospital [1-3]	New Orleans	C. A. Jones	1,403	100	8	16	3	...
Veterans Admin. Hospital [1-3]	Fort Howard, Md.	F. G. Dickey	2,089	116	2	6	3	...
Veterans Admin. Hospital [1-3]	Perry Point, Md.	S. Goldgraben	998	14	2	4	3	...
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain)	M. B. Strauss	5,236	211	10	30	3	...
Veterans Admin. Hospital [1-3]	Dearborn, Mich.	M. R. Weed	2,841	208	8	20	3	...
Veterans Admin. Hospital [1-3]	Minneapolis	E. B. Flink	931	66	10	36	3	...
Veterans Admin. Hospital [1]	Kansas City, Mo.	(See University of Kansas Medical Center)						
Veterans Admin. Hospital [1-3]	St. Louis	R. A. Gieselman	581	42	4	12	3	...
Veterans Admin. Hospital [1-3]	Lincoln, Neb.	J. R. Gordon	1,182	38	2	6	3	...
Veterans Admin. Hospital [1-3]	Omaha	J. R. Walsh	1,490	77	4	12	3	...
Veterans Admin. Hospital [1-3]	East Orange, N. J.	H. A. Weiner	1,013	105	8	8	2	...
Veterans Admin. Hospital [1-3]	Albuquerque, N. Mex.	W. S. Taylor	1,415	69	5	10	3	...
Veterans Admin. Hospital [1-3]	Albany, N. Y.	W. P. Nelson, III	2,864	157	8	20	3	...
Veterans Admin. Hospital [1]	Bath, N. Y.	H. W. Baum	1,337	56	1	3	2	...
Veterans Admin. Hospital [1-3]	Brooklyn	P. W. Spear	3,050	208	8	30	3	...
Veterans Admin. Hospital [1-3]	Buffalo	G. W. Bissell	2,264	125	4	13	3	...
Veterans Admin. Hospital [1-3]	New York City (Bronx)	J. Wolf	3,569	248	14	40	3	...
Veterans Admin. Hospital [1-3]	Durham, N. C.	(See Duke University Affiliated Hospitals)						
Veterans Admin. Hospital [1-3]	Cleveland	N. P. Shumway	4,343	148	..	24	3	...
Veterans Admin. Hospital [1-3]	Dayton, Ohio	A. Tomasulo	2,567	198	12	22	3	...
Veterans Admin. Hospital [1]	Oklahoma City	J. F. Hammarsten	1,423	79	5	15	3	...
Veterans Admin. Hospital [1-3]	Portland, Ore.	Z. T. Wirtschafter	2,213	146	6	18	3	...
Veterans Admin. Hospital [1-3]	Philadelphia	H. P. Close	1,908	141	5	15	3	...
Veterans Admin. Hospital [1]	Pittsburgh	R. Schwartz	1,524	198	6	18	3	...
Veterans Admin. Hospital	R. I.	H. A. Lawson	1,794	79	4	8	2	...
Veterans Admin. Hospital.	S. C.	S. L. Zimmerman	3,263	94	2	6	3	...
Veterans Admin. Hospital [1-3]	Memphis	B. R. Gendel	3,417	108	13	34	3	...
Veterans Admin. Hospital [1]	Nashville, Tenn.	R. France	2,206	73	6	15	2	...
Veterans Admin. Hospital [1-3]	Dallas, Texas	C. W. Sensenbach	1,241	93	12	23	3	...
Veterans Admin. Hospital [1-3]	Houston, Texas	(See Baylor University School of Medicine Affiliated Hospitals)						
Veterans Admin. Hospital [1-3]	McKinney, Texas	W. M. Daily	2,918	60	11	21	3	...
Veterans Admin. Hospital	Salt Lake City	H. Brown	1,032	45	4	10	2	...
Veterans Admin. Hospital	White River Junction, Vt.	(See Dartmouth Medical School Affiliated Hospitals)						
Veterans Admin. Hospital [1-3]	Richmond, Va.	K. Plummer	5,451	..	9	27	2	...
Veterans Admin. Hospital [1-3]	Seattle	R. S. Evans	1,492	113	6	13	2	...
Veterans Admin. Hospital [1-3]	Martinsburg, W. Va.	H. Field, Jr.	795	46	4	9	2	...
Veterans Admin. Hospital [1-3]	Milwaukee (Wood)	M. Garry	2,086	62	11	24	3	...
Veterans Admin. Hospital [3]	San Juan, P. R.	R. R. Molina	.....	..	2	5	1	...

Numerical and other references will be found on page 363.

8. INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Carraway Methodist Hospital [1-3]	Birmingham, Ala.	O. C. McCarn-E. D. Lineberry	2,224	34	1	3	3	250
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	T. R Harrison	2,934	92	8	16	3	108
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	C. E. Porter	2,743	43	3	7	3	225
City Hospital	Mobile, Ala.	J. H. Little	976	58	1	1	1	225
St. Mary's Hospital and Sanitarium [1-3]	Tucson, Ariz.	D. E. Engle	8,645	87	2	6	1	200
Tucson Medical Center [1-3]	Tucson, Ariz.	W. A. Butcher	883	19	2	2	1	200
Arkansas Baptist Hospital [1]	Little Rock, Ark.	A. A. Pringos	2,256	65	1	1	1	225
University Hospital [1-3]	Little Rock, Ark.	R. V. Ebert	621	68	3	6	1	145
General Hospital of Riverside County [1]	Arlington, Calif.	H. H. Stone	1,591	111	1	1	1	481
Kern General Hospital [1]	Bakersfield, Calif.	L. Yaussy	2,400	135	3	9	3	325
Herrick Memorial Hospital [1-3]	Berkeley, Calif.	H. I. Harvey	2,406	90	1	3	3	175
San Joaquin General Hospital [1-3]	French Camp, Calif.	G. K. Wever	1,374	176	3	5	3	235
General Hospital of Fresno County [1]	Fresno, Calif.	J. M. Masten	1,735	139	2	4	2	300
Glendale Sanitarium and Hospital [1]	Glendale, Calif.	H. J. Hoxie	4,203	124	1	3	3	165
Seaside Memorial Hospital [1-3]	Long Beach, Calif.	J. T. Hardesty	3,133	54	2	3	1	150
California Hospital [1-3]	Los Angeles	W. F. Wessels	2,816	102	3	5	3	150
Cedars of Lebanon Hospital [1-3]	Los Angeles	M. Prinzmetal-J. Reynolds	3,596	132	3	8	3	150
Hospital of the Good Samaritan [1-3]	Los Angeles	C. L. Davison	2,653	34	2	6	3	200
Los Angeles County General Hospital [1]	Los Angeles	E. Shapiro	22,417	796	10	31	3	200
Presbyterian Hospital-Olmsted Memorial [1-3]	Los Angeles	J. B. McDonald	1,941	40	1	3	1	125
Queen of Angels Hospital [1-3]	Los Angeles	M. Blacker	3,121	113	1	3	2	150
St. Vincent's Hospital [3]	Los Angeles	J. B. Doyle	2,585	63	1	1	1	200
University of California Hospital	Los Angeles	J. S. Lawrence	.....	...	6	9	3	87
White Memorial Hospital [1-3]	Los Angeles	J. E. Peterson	1,281	73	1	3	3	146
Highland-Alameda County Hospital [1-3]	Oakland, Calif.	T. C. McCleave, Jr.	5,137	195	4	11	3	195
Kaiser Foundation Hospital [1-3]	Oakland, Calif.	P. J. Raimondi	2,152	110	8	16	3	175
Collis P. and Howard Huntington Memorial Hosp. [1-3]	Pasadena, Calif.	D. T. Proctor	2,300	131	1	3	3	240
San Bernardino County Charity Hospital	San Bernardino, Calif.	W. L. Cover	1,501	159	4	4	1	190
Mercy Hospital [1]	San Diego, Calif.	E. M. Fetter	2,923	131	1	4	3	200
San Diego County General Hospital [1-3]	San Diego, Calif.	W. J. Tighe	2,011	227	4	7	3	150
Children's Hospital [1-3]	San Francisco	D. W. Atkinson	645	12	1	2	2	125
Franklin Hospital [1-3]	San Francisco	C. D. Mote	1,783	36	1	4	1	116
French Hospital [1-3]	San Francisco	D. L. Wilbur	2,883	89	2	3	2	125
Mary's Help Hospital [1-3]	San Francisco	F. Rochex	1,306	30	1	2	1	150
Mount Zion Hospital [1-3]	San Francisco	J. J. Sampson	1,958	49	3	6	3	...
St. Joseph's Hospital [1-3]	San Francisco	M. E. Leonard	2,018	49	1	1	1	150
St. Luke's Hospital [3]	San Francisco	E. L. Bruck	2,572	65	2	5	3	200
St. Mary's Hospital [1-3]	San Francisco	J. J. McGinnis	1,688	40	2	5	3	150
San Francisco Hospital								
Stanford University Service	San Francisco	J. K. Lewis	2,202	181	3	5	3	175
University of California Service [3]	San Francisco	H. D. Brainerd	2,329	168	3	5	3	175
Southern Pacific General Hospital [1-3]	San Francisco	R. E. Allen	2,067	68	3	6	3	150
Stanford University Hospitals [1-3]	San Francisco	D. A. Rytand	2,647	79	5	12	3	80
University of California Hospital [1-3]	San Francisco	T. L. Althausen	1,640	65	6	17	3	87
Santa Clara County Hospital [1]	San Jose, Calif.	S. F Kaufman	1,155	115	2	4	3	...
Community Hospital of San Mateo County [1-3]	San Mateo, Calif.	W. F. Knorp	721	67	1	2	2	400
Santa Barbara Cottage Hospital [1-3]	Santa Barbara, Calif.	J. W. Dalton	1,941	47	3	6	3	140
Harbor General Hospital [1-3]	Torrance, Calif.	W. P. Martin-F. Kellogg	3,441	333	7	21	3	200
Mercy Hospital [1-3]	Denver	W. L. Bennett	2,907	65	2	4	2	225
Presbyterian Hospital [1-3]	Denver	H. A. Bradford	1,453	57	1	1	2	150
St. Anthony Hospital [1-3]	Denver	F. R. Calhoun	2,426	67	1	3	3	175
St. Joseph's Hospital [1-3]	Denver	G. Curfman	3,121	84	..	3	3	150
St. Luke's Hospital [1-3]	Denver	J. Mendenhall	2,557	21	1	1	1	150
University of Colorado Medical Center								
Colorado General Hospital [1-3]	Denver	G. Meiklejohn	1,226	103	6	16	..	150
Denver General Hospital [1-3]	Denver	G. Meiklejohn	2,027	247	..	..	..	...
Bridgeport Hospital [1-3]	Bridgeport, Conn.	I. S Zaur	2,007	64	2	4	2	240
St. Vincent's Hospital [1-3]	Bridgeport, Conn.	V. Lynch	3,092	82	2	3	3	300
Greenwich Hospital [1-3]	Greenwich, Conn.	J. Lockwood	1,955	62	1	2	2	150
Hartford Hospital [1-3]	Hartford, Conn.	M. T. Root	4,739	207	11	18	3	50
Hartford Municipal Hospital and Health Center [1-3]	Hartford, Conn.	S. Donner	862	76	1	2	2	250
St. Francis Hospital [1-3]	Hartford, Conn.	J. R. Lenehan	4,083	115	1	3	3	100
New Britain General Hospital [1-3]	New Britain, Conn.	J. C. White	2,145	...	1	3	3	200
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	P. B Beeson-T. S. Evans	3,690	260	9	14	3	50
Hospital of St. Raphael [3]	New Haven, Conn.	T. S. Evans	2,325	...	3	7	3	125
Lawrence and Memorial Associated Hospitals [1-3]	New London, Conn.	A. Labensky	2,534	77	..	..	1	250
Norwalk Hospital [1-3]	Norwalk, Conn.	D. L. Ellrich	2,045	66	2	2	1	160
St. Mary's Hospital	Conn.	W. Finkelstein	3,341	75	2	4	3	225
Waterbury Hospital	Conn.	O. J. Bizzozero	5,370	103	1	3	3	225
Delaware Hospital [1-3]	Wilmington, Del.	L. B. Flinn	2,074	149	2	5	3	180
Memorial Hospital [1-3]	Wilmington, Del.	L. P. Lang	1,770	105	1	3	3	175
Wilmington General Hospital [1-3]	Wilmington, Del.	J. R. Durham, Jr.	1,619	38	2	2	3	250
Central Dispensary and Emergency Hospital [1]	Washington, D. C.	J. Minor	2,345	87	2	5	3	225
District of Columbia General Hospital [1-3]	Washington, D. C.	H. H. Hussey-M. J. Romansky	4,442	291	16	18	3	143
Doctors Hospital [1-3]	Washington, D. C.	A. McNitt	1,836	78	1	3	1	150
Garfield Memorial Hospital [1-3]	Washington, D. C.	J. L. Thompson, Jr.	1,770	61	1	4	3	210
Georgetown University Hospital [3]	Washington, D. C.	H. Jeghers	2,772	153	14	34	3	20
George Washington University Hospital [1-3]	Washington, D. C.	T. McP. Brown	4,099	42	1	8	3	150
Providence Hospital [1-3]	Washington, D. C.	J. Finnegan	1,713	66	1	3	3	200
Duval Medical Center [1-3]	Jacksonville, Fla.	K. B. Hanson	1,942	107	2	4	3	150
Riverside Hospital [1-3]	Jacksonville, Fla.	D. White	896	16	1	1	1	150
St. Luke's Hospital [1]	Jacksonville, Fla.	J. L. Borland	2,819	31	1	1	1	225
St. Vincent's Hospital [1-3]	Jacksonville, Fla.	L. E. Geeslin	2,126	63	2	6	3	135
Jackson Memorial Hospital [1-3]	Miami, Fla.	F. H. Stewart	1,560	79	5	10	3	75
Mount Sinai Hospital [1-3]	Miami Beach, Fla.	D. A. Nathan	2,703	67	1	3	3	250
St. Francis Hospital [1-3]	Miami Beach, Fla.	F. A. Reed	2,367	33	2	2	1	200
Orange Memorial Hospital [1-3]	Orlando, Fla.	F. Mathers	1,995	77	2	2	1	150
Mound Park Hospital	St. Petersburg, Fla.	....	2,574	125	..	..	1	283
Tampa Municipal Hospital [1-3]	Tampa, Fla.	H. P. Hampton	4,568	132	1	3	2	125
Crawford W. Long Memorial Hospital [1-3]	Atlanta, Ga.	L. H. Bishop, Jr.	3,432	69	4	7	3	110
Georgia Baptist Hospital [1-3]	Atlanta, Ga.	H. M. Davison	4,659	111	2	4	3	290
Grady Memorial Hospital [1-3]	Atlanta, Ga.	E. B. Ferris, Jr.	2,578	253	9	15	3	20
Piedmont Hospital [1]	Atlanta, Ga.	C. Smith	1,034	18	1	3	1	160
University Hospital [1-3]	Augusta, Ga.	V. P. Sydenstricker	2,377	81	3	9	3	160
Emory University Hospital [1]	Emory University, Ga.	E. Ferris	3,992	136	6	15	3	190
Alexian Brothers Hospital [3]	Chicago	F. Knoepfler	1,709	69	2	2	1	125
Augustana Hospital [1-3]	Chicago	C. A. Hedberg	4,069	110	1	3	3	150
Columbus Hospital [3]	Chicago	E. F. Foley	1,368	32	2	6	3	...
Cook County Hospital [1-3]	Chicago	E. F. Foley	17,471	707	36	36	3	50
Englewood Hospital [3]	Chicago	F. Stenn	1,850	...	1	1	1	200
Grant Hospital [1-3]	Chicago	A. Van der Kloot	2,019	95	1	3	3	225

Numerical and other references will be found on page 363.

8. INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Henrotin Hospital[1]	Chicago	F. K. Hick	998	26	1	1	1	200
Illinois Central Hospital[1-3]	Chicago	L. H. Sloan	2,925	98	2	2	1	200
Illinois Masonic Hospital[1-3]	Chicago	R. H. Hayes	4,184	173	2	3	2	115
Loretto Hospital[1-3]	Chicago	S. G. Plice	664	39	1	1	1	200
Lutheran Deaconess Home and Hospital[3]	Chicago	G. O. Solem	1,921	77	2	2	1	200
Mercy Hospital[1-3]	Chicago	G. F. O'Brien	2,067	50	4	9	3	100
Michael Reese Hospital[1-3]	Chicago	R. Levine	3,311	110	4	12	3	50
Mount Sinai Hospital[1-3]	Chicago	M. M. Kirshen	3,097	67	3	4	3	100
Northwestern University Medical Center								
Chicago Wesley Memorial Hospital[1-3]	Chicago	P. S. Rhoads	5,058	156	2	7	3	50
Passavant Memorial Hospital[1-3]	Chicago	A. R. Colwell	2,862	70	4	4	3	50
Veterans Admin. Research Hospital[1]	Chicago	C. Borden	497	30	8	21	2	...
Evanston Hospital[1-3]	Evanston, Ill.	L. D. Snorf	3,217	142	2	6	3	...
Norwegian American Hospital[1-3]	Chicago	M. Gethner	1,171	33	2	2	1	225
Presbyterian Hospital[1]	Chicago	J. A. Campbell	4,106	109	4	8	3	125
Provident Hospital[1-3]	Chicago	A. F. Connor	1,109	27	1	3	2	200
Ravenswood Hospital[1-3]	Chicago	B. L. Sargent	2,230	97	1	2	1	75
St. Joseph Hospital[1-3]	Chicago	L. Hines	1,093	45	2	2	1	200
St. Luke's Hospital[1-3]	Chicago	H. Wakefield	4,011	109	4	12	3	50
St. Mary of Nazareth Hospital[1]	Chicago	S. A. Motto	2,591	72	1	3	1	150
University of Chicago Clinics[1-3]	Chicago	W. Adams	3,433	123	8	22	3	175
University of Illinois Research and Educational Hospitals[1]	Chicago	H. F. Dowling	1,157	62	8	20	3	...
Women and Children's Hospital[2-3]	Chicago	M. Austin	1,142	21	1	1	1	100
St. Francis Hospital[1-3]	Evanston, Ill.	R. M. Jones	2,349	129	2	4	1	175
Little Company of Mary Hospital[1-3]	Evergreen Park, Ill.	R. E. Lee	3,306	91	2	2	1	150
West Suburban Hospital[3]	Oak Park, Ill.	E. F. Traut	1,638	63	1	1	1	225
St. Francis Hospital[1-3]	Peoria, Ill.	R. B. Rutherford	4,557	130	1	2	3	...
Clinic Hospital[1-3]	Bluffton, Ind.	A. C. Nickel	3,185	48	1	3	3	300
Indianapolis General Hospital[1-3]	*Indianapolis*	*P. J. Fouts*	*1,734*	*146*	4	*15*	3	*165*
Indiana University Medical Center[1]	Indianapolis	J. O. Ritchey	2,036	87	3	9	3	165
Methodist Hospital[1-3]	Indianapolis	I. J. Kwitny	2,738	61	1	3	3	273
St. Vincent's Hospital[1-3]	Indianapolis	R. M. Vandivier	1,992	104	1	4	3	275
St. Elizabeth Hospital	Lafayette, Ind.	R. P. Gripe	1,694	47	1	3	1	175
Iowa Methodist Hospital[1-3]	Des Moines, Iowa	H. J. Smith	3,282	102	1	3	3	150
University Hospitals[1-3]	Iowa City	W. B. Bean	2,868	137	8	23	3	118
University of Kansas Medical Center[1-3]	Kansas City, Kan.	E. G. Dimond	2,324	96	8	25	3	125
Veterans Admin. Hospital[1]	Kansas City, Mo.	A. P. Klotz	444	20	4	4	1	...
St. Francis Hospital[1-3]	Wichita, Kan.	W. C. Goodpasture	3,994	73	3	3	1	275
Wesley Hospital[1-3]	Wichita, Kan.	E. Mills	3 301	34	1	3	3	150
Good Samaritan Hospital[1]	Lexington, Ky.	J. Scott	2,884	107	1	1	1	225
St. Joseph Hospital[1-3]	Lexington, Ky.	J. W. Scott	2,119	72	1	3	1	230
Louisville General Hospital[1-3]	Louisville, Ky.	J. M[illegible]	1,717	113	8	17	3	131
St. Joseph Infirmary[1-3]	Louisville, Ky.	G. [illegible]	3,024	84	1	3	1	185
Charity Hospital of Louisiana								
Independent Unit[1]	*New Orleans*	*J. O. Weilbaecher, Jr.*	*2,114*	*128*	*3*	*9*	*3*	100
Louisiana State University Unit[1]	New Orleans	W. R. Akenhead	4,494	265	5	13	3	100
Tulane University Unit[1]	New Orleans	G. E. Burch	4,959	243	5	13	3	100
Ochsner Foundation Hospital[1]	New Orleans	W. A. Arrowsmith	2,192	83	4	12	3	200
Southern Baptist Hospital[1]	New Orleans	C. Nadler	6,039	97	1	3	1	225
Touro Infirmary[1]	New Orleans	S. Jacobs	5,254	122	2	6	3	100
Confederate Memorial Medical Center[1]	Shreveport, La.	M. D. Hargrove	4,465	121	3	9	3	125
Central Maine General Hospital[1]	Lewiston, Maine	M. A. Chapin	1,490	77	1	1	1	150
Maine General Hospital[1]	Portland, Maine	E. R. Blaisdell	1,947	64	2	6	3	100
Baltimore City Hospitals[1-3]	Baltimore	G. S. Mirick	1,543	124	4	9	3	75
Church Home and Hospital[1-3]	Baltimore	Z. R. Morgan	992	33	1	3	3	200
Franklin Square Hospital[1-3]	Baltimore	W. H. Smith	819	22	1	3	1	225
Hospital for Women	Baltimore	....	.....	...	..	..	..	...
Johns Hopkins Hospital[1-3]	Baltimore	A. M. Harvey	2,389	238	..	11	3	20
Lutheran Hospital[1-3]	Baltimore	L. A. M. Krause	1,538	45	4	8	3	220
Maryland General Hospital[1-3]	Baltimore	E. F. Cotter	953	31	2	3	2	225
Mercy Hospital[1-3]	Baltimore	H. R. Peters	1,574	76	2	5	3	275
Provident Hospital and Free Dispensary[1-3]	Baltimore	L. Martin	609	22	1	2	1	150
St. Agnes Hospital[1-3]	Baltimore	L. P. Gundry	2,401	70	2	5	1	125
Sinai Hospital[1-3]	Baltimore	M. Sherry	1,805	75	3	9	3	110
South Baltimore General Hospital[1-3]	Baltimore	L. P. Gundry	1,299	27	2	4	1	150
Union Memorial Hospital[1-3]	Baltimore	W. A. Baetjer	2,020	88	4	6	3	115
University Hospital[1-3]	Baltimore	T. E. Woodward	2,568	168	8	16	3	50
Prince George's General		W. B. Moyers	2,976	56	2	2	1	200
Beverly Hospital		A. E. Parkhurst	1,845	77	..	1	1	100
Beth Israel Hospital[1-3]	Boston	H. L. Blumgart	2,714	118	3	10	3	42
Boston City Hospital[1-3]	Boston	F. Biguria-W. Castle	11,159	735	24	48	3	112
Carney Hospital[1-3]	Boston	N. A. Welch	1,709	52	2	4	2	125
Faulkner Hospital[1-3]	Boston	J. R. Graham	965	35	2	3	2	125
Lahey Clinic[1-3]	Boston	L. M. Hurxthal	1,274	46	15	30	3	175
Massachusetts General Hospital[1-3]	Boston	W. Bauer	6,564	312	12	16	3	66.67
Massachusetts Memorial Hospitals[1-3]	Boston	C. Keefer	1,778	68	3	19	3	25
New England Center Hospital[1-3]	Boston	S. *Proger*	4.272	39	5	41	3	83
New England Deaconess Hospital[1-3]	Boston	L. H. Hoyt-H. F. Root	3,485	69	8	9	2	150
Peter Bent Brigham Hospital[1-3]	Boston	G. W. Thorn	2,714	166	12	19	3	83
St. Elizabeth's Hospital[1-3]	Boston	S. McGinn	2,464	41	2	2	2	125
Cambridge City Hospital[1-3]	Cambridge, Mass.	E. J. Vogel	1,235	80	1	3	2	125
Mount Auburn Hospital[1-3]	Cambridge, Mass.	D. Hurwitz	1,355	64	1	3	1	125
Lawrence F. Quigley Memorial Hospital	Chelsea, Mass.	W. R. Ohler	471	16	2	2	1	255
Truesdale Hospital[1-3]	Fall River, Mass.	W. Mason	1,332	...	2	2	1	150
Lynn Hospital[1-3]	Lynn, Mass.	C. A. Palladino	2,710	54	1	1	2	150
Malden Hospital[1-3]	Malden, Mass.	D. Merrill	1,199	38	1	2	1	125
Newton-Wellesley Hospital	Newton Lower Falls, Mass.	E. E. Kattwinkel	2,463	61	..	..	1	170
Salem Hospital[1-3]	Salem, Mass.	S. N. Gardner	1,492	57	1	1	1	125
Springfield Hospital[1-3]	Springfield, Mass.	W. C. Barnes	2,473	79	3	6	3	100
Memorial Hospital[1-3]	Worcester, Mass.	R. W. Robinson	2,440	66	1	2	1	200
St. Vincent Hospital[1-3]	Worcester, Mass.	J. T. Brosnan	3,242	86	2	6	3	175
Worcester City Hospital[3]	Worcester, Mass.	E. Budnitz	1,665	177	1	2	3	215
St. Joseph Mercy Hospital[1-3]	Ann Arbor, Mich.	M. Marshall	2,528	81	4	7	3	200
University Hospital[1-3]	Ann Arbor, Mich.	C. C. Sturgis	4,662	193	16	46	3	145
Leila Y. Post Montgomery Hospital[1]	Battle Creek, Mich.	L. E. Verity	2,444	22	1	3	3	275
Alexander Blain Hospital[1-3]	Detroit	J. W. Kingsley	1,256	11	1	3	2	250
Detroit Memorial Hospital[1]	Detroit	J. Rom	2,679	42	2	4	3	250
Evangelical Deaconess Hospital[1-3]	Detroit	L. D. Stern	1,945	60	1	3	3	265
Florence Crittenton Hospital[1-3]	Detroit	W. B. Cooksey	950	43	1	1	1	...
Grace Hospital[1-3]	Detroit	D. Myers	5,250	146	4	12	3	225
Harper Hospital[1-3]	Detroit	R. J. Schneck	2,978	133	4	12	3	225

Numerical and other references will be found on page 363.

8. INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Henry Ford Hospital[1-3]	Detroit	J. G. Mateer	6,090	179	23	60	3	225
Jennings Memorial Hospital[1-3]	Detroit	D. Donald	670	7	1	3	3	350
Mount Carmel Mercy Hospital[1-3]	Detroit	H. L. Smith	4,964	176	4	10	3	225
Providence Hospital[1-3]	Detroit	G. I. Hiller	3,263	138	1	3	3	250
Receiving Hospital[1-3]	Detroit	G. B. Myers	4,701	425	11	30	3	270
St. Joseph Mercy Hospital[1]	Detroit	E. D. Maire	2,150	47	1	2	3	240
Sinai Hospital[1-3]	Detroit	J. E. Berk	2,565	67	4	8	3	275
Woman's Hospital[1-3]	Detroit	B. I. Johnstone	923	26	1	2	3	250
Wayne County General Hospital and Infirmary[1-3]	Eloise, Mich.	M. R. McQuiggan	3,475	195	5	17	3	279
Hurley Hospital[3]	Flint, Mich.	G. E. Drewyer	8,615	154	2	6	..	325
McLaren General Hospital[1]	Flint, Mich.	H. V. Sparks	2,196	75	1	3	3	325
Blodgett Memorial Hospital[1-3]	Grand Rapids, Mich.	R. Vander Meer	1,362	56	1	3	3	225
Butterworth Hospital[1-3]	Grand Rapids, Mich.	J. R. Venema	1,979	101	2	4	3	225
St. Mary's Hospital[1-3]	Grand Rapids, Mich.	J. Sanders	1,467	78	1	3	3	200
Bronson Methodist Hospital[1]	Kalamazoo, Mich.	H. E. De Pree	1,912	68	1	4	3	260
Edward W. Sparrow Hospital[1-3]	Lansing, Mich.	W. D. Hayford	3,466	106	1	3	3	350
St. Lawrence Hospital[1-3]	*Lansing, Mich.*	F. Swartz	12,050	188	2	2	3	...
Pontiac General Hospital[1-3]	Pontiac, Mich.	D. S. Smith	2,919	78	1	3	2	300
St. Joseph Mercy Hospital[1-3]	Pontiac, Mich.	S. Miller	3,323	59	2	4	3	325
Saginaw General Hospital[1-3]	Saginaw, Mich.	B. M. Bullington	1,542	59	1	3	3	325
St. Mary's *Hospital*[1-3]	*Duluth, Minn.*	P. G. Boman	2 000	115	1	1	1	175
Asbury Methodist Hospital[1]	Minneapolis	W. S. Hagen	2,423	55	1	1	1	250
Minneapolis General *Hospital*[1-3]	*Minneapolis*	T. Lowry	1,607	125	4	10	3	182
Mount Sinai Hospital[1-3]	Minneapolis	E. Hill	2,291	65	1	1	1	162
Northwestern Hospital[1-3]	Minneapolis	D. Rizer	2,223	91	1	2	1	200
St. Barnabas Hospital[1-3]	Minneapolis	L. R. Scherer	2,099	70	1	1	1	...
University of Minnesota Hospitals[1-3]	Minneapolis	C. J. Watson	1,903	149	5	15	3	182
Mayo Foundation[1-3]	Rochester, Minn.		23,496	314	64	159	3	150
Ancker Hospital[1-3]	St. Paul	J. F. Briggs	1,318	125	2	6	3	181
Charles T. Miller Hospital[1]	St. Paul	H. J. Wolff	3,063	60	1	3	3	185
St. Louis County Hospital[1-3]	Clayton, Mo.	R. O. Muether	966	102	2	5	3	225
Kansas City General Hospital No. 1[1-3]	Kansas City, Mo.	P. L. Byers	1,664	172	4	12	3	150
Menorah Hospital Medical Center[1-3]	Kansas City, Mo.	A. M. Ginsberg	3,915	73	3	6	3	200
Research Hospital[1-3]	Kansas City, Mo.	M. J. Mueller	992	45	1	3	3	175
St. Joseph Hospital[1-3]	Kansas City, Mo.	T. R Jones	2,589	...	1	4	3	250
St. Luke's Hospital[1-3]	Kansas City, Mo.	H. P. Boughnou	3,194	103	2	4	3	175
Barnes Hospital[1-3]	St Louis	W. B. Wood	4,941	248	12	29	3	50
De Paul Hospital[1-3]	St. Louis	L. D Cassidy	2,735	105	2	5	3	200
Homer G. Phillips Hospital[1-3]	St. Louis	J R. Smith	2,656	87	10	24	3	190
Jewish Hospital[1-3]	St. Louis	S. Sherry	3,442	125	6	9	3	100
Missouri Pacific Hospital[3]	St. Louis	L. B. Harrison	4,000	47	4	7	3	...
St. Anthony's Hospital[1-3]	St. Louis	R. V. Powell	2,027	34	1	1	1	150
St. John's Hospital[1-3]	St. Louis	C. H. Neilson	2,422	83	1	3	1	200
St. Louis City Hospital[1-3]	St. Louis	B. Bereu-W. A. Knight, Jr.	3,185	265	12	24	3	190
St. Luke's Hospital[1]	St. Louis	P O. Hagemann	1,540	98	1	3	3	200
St. Mary's Group of Hospitals[1-3]	St. Louis	G O. Broun	3,537	154	6	15	3	100
Montana Deaconess Hospital[1-3]	Great Falls, Mont.	F. R. Schemm	1,991	74	2	6	3	200
Creighton Memorial-St. Joseph's Hospital	Omaha	H. N. Neu	4,411	106	2	6	3	175
University of Nebraska Hospital[1-3]	Omaha	W. B. Moody	499	23	2	5	3	...
Dartmouth Medical School Affiliated Hospitals			3,345	118	5	15	3	188
Mary Hitchcock Memorial Hospital[1-3]	Hanover, N. H.	J. W. Wright	....	...	..	..	..	...
Veterans Admin. Hospital[1]	White River Junction, Vt.	J. L. Grant	....	...	..	..	..	...
Atlantic City Hospital[1-3]	Atlantic City, N. J.	W. B. Stewart	1,472	53	1	3	3	200
Cooper Hospital[1-3]	Camden, N. J.	R. L. Sharp	2,238	158	2	3	3	200
Englewood Hospital[1-3]	Englewood, N J.	G. B. Barlow	1,030	35	1	1	1	150
Hackensack Hospital[1-3]	Hackensack, N. J.	L W. Black	2,183	100	1	3	2	150
Jersey City Medical Center[1-3]	*Jersey City, N. J.*	T. J White	10 359	161	8	23	3	92
Mountainside Hospital[1-3]	Montclair, N. J.	H. Halprin	3,598	154	1	3	3	175
Morristown Memorial Hospital	Morristown, N. J.	F. C. Bowers	2,392	90	1	2	2	185
Burlington County Hospital[1-3]	Mt. Holly, N. J.	P. S. MacNeal	817	63	3	3	1	100
Fitkin Memorial Hospital[1-3]	Neptune, N J.	L. F. Albright	2,[illegible]61	96	2	2	1	200
Harrison S. Martland Medical Center[1-3]	Newark, N. J.	J. Levin	3,631	163	6	10	3	162
Newark Beth Israel Hospital[1-3]	Newark, N. J.	H. H. Goldberg	2,048	85	1	3	3	75
St. Michael's Hospital[1-3]	Newark, N. J.	N. A Antonius	2,460	73	4	6	3	125
St. Peter's General Hospital[1-3]	New Brunswick, N. J.	J. Sandella	1,003	47	1	1	1	175
Orange Memorial Hospital[1-3]	Orange, N. J.	D. W. Marquis	1,825	102	1	2	2	150
Bergen Pines County Hospital	Paramus, N. J.	*G. B. Barlow*	*1,292*	*151*	*6*	*6*	1	*200*
Paterson General Hospital[1-3]	Paterson, N. J.	A. G. Markel-J. E. Leach	1,474	48	2	2	1	125
Mercer Hospital[3]	Trenton, N. J.	J. F. Pessel	1,552	60	1	1	1	150
St. Francis Hospital[1-3]	Trenton, N. J.	P. Corrigan	5,209	80	2	4	2	210
Albany Hospital[1-3]	Albany, N. Y.	R. T. Beebe	3,085	200	3	14	3	...
Binghamton City Hospital[1-3]	Binghamton, N. Y.	C. H. Berlinghof	3,244	279	2	4	3	150
Beth-El Hospital[1-3]	Brooklyn	I. Snapper	2,026	32	4	7	3	125
Brooklyn Hospital[1-3]	Brooklyn	E. P. Maynard	1,969	...	4	8	3	...
Coney Island Hospital[1-3]	Brooklyn	M. Mensch	1,711	87	2	4	3	105
Cumberland Hospital[1-3]	Brooklyn	S. P. Bailey	1,907	54	2	5	3	...
Greenpoint Hospital[1-3]	Brooklyn	J. N. Cohen	1,925	35	2	4	2	105
Jewish Chronic Disease Hospital[1-3]	Brooklyn	E. L. Shlevin	2,251	100	4	8	3	75
Jewish Hospital[1-3]	Brooklyn	M. G. Goldner	1,373	14	10	22	3	175
Kings County Hospital								
County Division	Brooklyn	A. Fankhauser	.....	...	6	19	3	...
University Service[1-3]	Brooklyn	P. H. Long	5,768	269	6	20	3	104
Long Island College Hospital[1-3]	Brooklyn	J. H. Crawford	2,466	67	3	5	3	75
Maimonides Hospital[1-3]	Brooklyn	M. Michael, Jr.	2,508	100	..	9	3	75
Methodist Hospital[1-3]	Brooklyn	H. D. Fearon	1,987	54	2	5	3	175
Norwegian Lutheran Deaconesses' Home and Hospital[1-3]	Brooklyn	W. F. Rexer	793	61	1	2	3	160
St. Catherine's *Hospital*[1-3]	*Brooklyn*	M. Murphy	1,233	49	1	3	3	125
St. John's Episcopal Hospital[1-3]	Brooklyn	E. R. Marzullo	1,806	43	2	4	1	175
Wyckoff Heights Hospital[1-3]	Brooklyn	J. Indelicato	1,266	31	1	3	3	100
Allied Hospitals of the Sisters of Charity[1-3]	Buffalo	H. F. Brown	5,491	141	2	6	3	210
Buffalo General Hospital[1-3]	Buffalo	J. H. Talbott	4,336	183	7	9	3	175
Deaconess Hospital[1-3]	Buffalo	F. J. Montrose	2,264	74	2	6	1	300
Edward J Meyer Memorial Hospital[1]	Buffalo	D. K. Miller	3,775	173	5	16	3	179
Millard Fillmore Hospital[1-3]	Buffalo	J. F. Painton	2,703	106	3	8	3	255
Clifton Springs Sanitarium and Clinic[1-3]	Clifton Springs, N. Y.	B. A. Watson	2,287	37	1	3	3	100
Mary Imogene Bassett Hospital[1-3]	Cooperstown, N Y.	J. Bordley, III	1,080	56	1	3	3	145
Flushing Hospital and Dispensary[1-3]	Flushing, N. Y.	O. Cramer	1,777	57	1	3	3	150
Meadowbrook Hospital[1-3]	Hempstead, N. Y.	E. Calvelli-A. R. Anderson	3,379	311	4	8	3	225
Cornell University Infirmary[1-3]	Ithaca, N. Y.	N. S. Moore	1,258	...	4	4	1	208
Tomkins County Memorial Hospital								
Jamaica Hospital	Jamaica, N. Y.	M. A. Sanders	8,513	65	1	1	1	...

Numerical and other references will be found on page 363.

8. INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Mary Immaculate Hospital[1-3]	Jamaica, N. Y.	F. Mazzola	1,526	30	2	2	1	120
Queen's Hospital Center[1-3]	Jamaica, N. Y.	A. A. Fischl	4,672	334	7	10	2	105
Charles S. Wilson Memorial Hospital[1-3]	Johnson City, N. Y.	J. C. Zillhardt	4,029	104	3	6	2	200
North Shore Hospital	Manhasset, N. Y.		1,069	29	..	4	2	200
Mount Vernon Hospital[6]	Mount Vernon, N. Y.	P. Reznikoff	1,611	51	1	2	2	200
New Rochelle Hospital[1-3]	New Rochelle, N. Y.	W. C. Meredith	5,280	70	1	3	3	225
Bellevue Medical Center								
Division I—Columbia University[1-3]	New York City	D. W. Richards	1,825	86	7	13	3	105
Division II—Cornell University[1-3]	New York City	T. P. Almy	1,948	81	8	13	3	105
Division III—N. Y. University College of Medicine[1-3]	New York City	W. S. Tillett	2,500	93	8	16	3	105
Division IV—New York University-Post-Graduate Medical School[1-3]	New York City	C. F. Wilkinson, Jr.	1,752	86	10	30	3	105
Beth David Hospital[1-3]	New York City	H. A. Solomon	2,129	28	1	1	1	...
Beth Israel Hospital[1-3]	New York City	A. M. Fishberg	1,711	68	4	4	3	120
Bird S. Coler Memorial Hospital and Home[1-3]	New York City	L. J. Boyd	2,247	33	12	36	2	157
Bronx Hospital[1-3]	New York City	E. E. Fischel	2,161	43	2	7	3	50
Flower and Fifth Avenue Hospitals[1-3]	New York City	L. J. Boyd	1,334	27	2	5	3	...
Fordham Hospital[1-3]	New York City	B. Pasquarelli	3,940	158	6	8	2	105
Francis Delafield Hospital[1-3]	New York City	R. Loeb	305	90	2	8	3	106
French Hospital[1-3]	New York City	H. J. McNeile	1,181	10	1	3	2	50
Goldwater Memorial Hospital University Division[1-3]	New York City	M. Rosenbluth	1,194	32	2	11	3	104
Harlem Hospital[1-3]	New York City	A. Altschul	3,985	75	4	10	3	...
Hospital for Joint Diseases[1-3]	New York City	M. Dinnerstein	683	19	1	2	2	80
Jewish Memorial Hospital[3]	New York City	B. M. Hershfield	1,040	45	1	1	1	150
Knickerbocker Hospital[1-3]	New York City	J. R. Murphy	2,667	58	2	4	3	110
Lebanon Hospital[1-3]	New York City	H. L. Frosch-S. J. Schneiers	1,294	43	1	1	1	100
Lenox Hill Hospital[1-3]	New York City	C. E. de la Chapelle-E. A. Lawrence	1,933	61	4	6	2	180
Lincoln Hospital[1-3]	New York City	J. Geiger	3,311	87	4	12	1	71
Memorial Center for Cancer and Allied Diseases[1-3]	New York City	R. W. Rawson-L. F. Craver	1,229	186	12	24	3	98
Metropolitan Hospital[1-3]	New York City	L. J. Boyd	4,020	137	5	13	3	104
Misericordia Hospital[1-3]	New York City	L. B. Rooney	860	16	1	2	1	100
Montefiore Hospital[1-3]	New York City	L. Leiter	2,492	119	16	26	3	75
Morrisania City Hospital[1-3]	New York City	S. Biloon	3,647	140	6	11	2	105
Mount Sinai Hospital[1-3]	New York City	A. B. Gutman	6,197	214	12	36	3	50
New York City Hospital[1-3]	New York City	L. R. Tuchman-W. Wheeler, Jr.	3,361	89	4	8	3	104
New York Hospital[1-3]	New York City	D. P. Barr	2,636	186	11	23	3	34
New York Infirmary[2-3]	New York City	A. P. McCombs	239	6	1	1	1	150
New York Polyclinic Medical School and Hospital[1-3]	New York City	J. P. Croce	1,695	29	1	3	3	...
New York University-Bellevue Medical Center University Hospital[1-3]	New York City	C. F. Wilkinson, Jr.	2,047	37	..	1	1	135
Presbyterian Hospital[1]	New York City	R. F. Loeb	7,788	130	12	20	3	208
Roosevelt Hospital[1-3]	New York City	J. M. Freston-A. J. Antenucci	2,491	78	6	12	3	116
St. Barnabas Hospital for Chronic Diseases[1-3]	New York City	A. J. Platek, Jr.	803	41	1	2	2	200
St. Clare's Hospital[1-3]	New York City	J. P. Croce	1,760	53	1	3	3	125
St. Francis Hospital[1-3]	New York City	E. P. Flood	1,669	50	3	4	2	175
St. Luke's Hospital[1-3]	New York City	G. J. Coffin	3,276	134	6	18	3	75
St. Vincent's Hospital[1-3]	New York City	O. La Rotonda	3,550	196	6	13	3	100
Sydenham Hospital[1-3]	New York City	E. Applebaum	805	17	1	3	1	105
United Hospital[1-3]	Port Chester, N. Y.	N. H. Schwartz	2,032	42	1	1	1	200
Genesee Hospital[1-3]	Rochester, N. Y.	C. Boller	1,400	109	2	5	3	75
Highland Hospital[1-3]	Rochester, N. Y.	J. R. Williams, Jr.	1,266	72	2	5	3	100
Rochester General Hospital[1-3]	Rochester, N. Y.	L. Pulsifer	2,144	147	3	9	3	100
St. Mary's Hospital[1-3]	Rochester, N. Y.	L. F. La Palm	3,299	227	4	8	3	200
Strong Memorial-Rochester Municipal Hospital[1-3]	Rochester, N. Y.	W. S. McCann	60,378	361	..	15	3	...
Ellis Hospital[1-3]	Schenectady, N. Y.	H. Reynolds	3,575	89	2	4	3	150
Staten Island Hospital[1-3]	Staten Island, N. Y.	E. H. Robitzek	1,728	71	1	1	1	200
State University of New York Medical Center[1-3]	Syracuse, N. Y.	R. H. Lyons	7,895	823	12	36	3	192
Grasslands Hospital[1-3]	Valhalla, N. Y.	R. R. Heffner	843	104	1	5	3	175
White Plains Hospital [illegible]	[illegible] Y.	E. W. Weber	1,513	44	1	3	3	175
North Carolina Memori[illegible]	[illegible] C.	C. H. Burnett	855	35	6	13	3	145
Charlotte Memorial Hospital[1]	Charlotte, N. C.	J. M. Alexander	2,364	71	1	2	2	250
Duke University Affiliated Hospitals			....	...	..	..	3	...
Duke University Hospital[1-3]	Durham, N. C.	E. A. Stead, Jr.	3,056	110	14	34	..	42
Veterans Admin. Hospital	Durham, N. C.	J. V. Warren	2,306	69	4	13	..	...
Watts Hospital[1-3]	Durham, N. C.	I. H. Manning	2,668	47	2	5	3	100
Rex Hospital[1]	Raleigh, N. C.	E. W. Brian	1,596	40	1	1	1	200
St. Agnes Hosp[illegible]	Raleigh, N. C.	V. S. Caviness	808	26	1	1	1	250
City Memorial [illegible]	[illegible] C.	C. R. Welfare	2,567	29	1	3	3	...
Kate Bitting Re[illegible]	[illegible] C.	E. L. Davis	2,018	46	1	2	2	200
North Carolina [illegible]	[illegible] C.	E. H. Yount, Jr.	2,627	66	3	10	3	125
Bismarck Hospital[3]	Bismarck, N. Dak.	C. H. Peters	1,402	26	1	1	1	300
St. Luke's Hospital	Fargo, N. Dak.	L. G. Wold	1,558	40	2	2	1	300
Akron General Hospital[1-3]	Akron, Ohio	J. P. Sauvageot	1,320	65	2	5	3	250
City Hospital[1-3]	Akron, Ohio	R. Wilson	5,990	..	3	6	3	250
St. Thomas Hospital[1-3]	Akron, Ohio	R. B. Smith	2,628	114	2	5	3	250
Aultman Hospital[1-3]	Canton, Ohio	C. V. Smith	3,016	122	3	4	3	275
Mercy Hospital[1-3]	Canton, Ohio	I. B. Hamilton	3,776	65	2	6	3	200
Bethesda Hospital	Cincinnati	J. H. Kotte	1,430	14	1	1	1	200
Christ Hospital[1]	Cincinnati	I. F. Schroth	1,245	76	2	4	3	200
Cincinnati General Hospital[1-3]	Cincinnati	M. A[illegible]	2,067	239	14	44	3	20
Deaconess Hospital[1-3]	Cincinnati	R. [illegible]	3,357	45	2	2	1	175
Good Samaritan Hospital[1-3]	Cincinnati	M. Marsh	2,776	118	2	6	3	175
Jewish Hospital[1-3]	Cincinnati	H. S. Schiro	2,408	178	5	10	3	145
St. Mary's Hospital[1-3]	Cincinnati	R. J. Anzinger	1,158	49	1	3	3	250
City Hospital[1-3]	Cleveland	R. W. Scott	2,136	176	5	16	3	150
Cleveland Clinic Hospital[1-3]	Cleveland	A. C. Ernstene	1,647	42	17	42	3	175
Fairview Park Hospital[1-3]	Cleveland	H. E. Christman	1,828	36	2	2	1	125
Lutheran Hospital[1-3]	Cleveland	M. August	1,474	54	1	4	3	162
Mount Sinai Hospital[1]	Cleveland	M. Siegel	3,322	150	5	9	3	215
St. Alexis Hospital[1-3]	Cleveland	R. R. Bartunek	3,953	75	2	6	2	250
St. John's Hospital[1-3]	Cleveland	W. J. Fornes	1,371	17	2	4	3	170
St. Luke's Hospital[1]	Cleveland	A. D. Nichol	3,533	130	3	7	3	120
St. Vincent's Charity Hospital[1-3]	Cleveland	M. I. Sparks	3,296	67	3	7	3	210
University Hospitals[1-3]	Cleveland	J. T. Wearn	3,947	225	13	23	3	125
Mount Carmel Hospital[1]	Columbus, Ohio	P. T. Knies	2,525	89	1	3	3	...
Ohio State University Hospitals University Hospitals[1-3]	Columbus, Ohio	B. K. Wiseman	3,906	156	5	19	3	150
White Cross Hospital[1-3]	Columbus, Ohio	D. J. Vincent	949	21	1	3	3	275

Numerical and other references will be found on page 363.

8. INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[5]	Total Residencies Offered[5]	Length of Approved Program (Years)	Beginning Stipend (Month)
Miami Valley Hospital[1-3]	Dayton, Ohio	H. R. Cammerer	2,611	128	1	3	3	160
Huron Road Hospital[1-3]	East Cleveland, Ohio	E. A. Marshall	2,210	69	2	4	2	210
Marymount Hospital[3]	Garfield Heights, Ohio	A. A. Hill	2,089	..	2	2	1	...
Lakewood Hospital[1-3]	Lakewood, Ohio	J. T. Ledman	1,917	87	3	6	3	200
St. Rita's Hospital[1-3]	Lima, Ohio	F. G. Maurer	1,641	22	1	3	3	225
Maumee Valley Hospital[1-3]	Toledo, Ohio	W. S. Thal	1,078	71	2	6	3	...
Mercy Hospital[1-3]	Toledo, Ohio	G. W. Bascom	943	20	1	2	1	250
St. Vincent's Hospital[1-3]	Toledo, Ohio	M. A. Schnitker	3,661	83	2	4	3	225
Toledo Hospital[1-3]	Toledo, Ohio	C. S. Mundy	2,319	66	1	3	3	200
St. Elizabeth's Hospital[1-3]	Youngstown, Ohio	M. W. Neidus	2,389	76	2	3	2	300
Youngstown Hospital[1-3]	Youngstown, Ohio	W. H. Bunn	7,385	222	3	9	3	175
St. Anthony Hospital	Oklahoma City	P. M. McNeil	1,789	53	1	2	2	150
University Hospitals[1-3]	Oklahoma City	S. Wolf	1,036	75	5	12	3	85
Wesley Hospital[1]	Oklahoma City	W. W. Rucks, Jr.	1,236	49	1	3	1	225
St. John's Hospital[1-3]	Tulsa, Okla.	P. M. Schreck	2,925	60	2	4	3	...
Emanuel Hospital[1-3]	Portland, Ore.	G. M. Robins	2,802	114	1	3	3	175
Good Samaritan Hospital[1-3]	Portland, Ore.	H. Kammer	5,096	114	2	6	1	250
Providence Hospital[1-3]	Portland, Ore.	G. Long	3,816	176	1	3	3	175
St. Vincent's Hospital[1-3]	Portland, Ore.	A. L. Rogers	4,295	120	2	6	3	175
University of Oregon Medical School Hospitals and Clinics[1-3]	Portland, Ore.	H. P. Lewis	2,257	237	3	8	2	85
Abington Memorial Hospital[1-3]	Abington, Pa.	J. T. Beardwood, Jr.	1,653	75	1	3	3	100
Allentown Hospital[1-3]	Allentown, Pa.	C. H. Kelchner	2,871	73	1	2	3	225
Sacred Heart Hospital[1-3]	Allentown, Pa.	A. W. Dubbs	2,440	64	1	2	2	225
Bryn Mawr Hospital[1-3]	Bryn Mawr, Pa.	W. W. Dyer	2,652	111	3	6	3	100
George F. Geisinger Memorial Hospital[1-3]	Danville, Pa.	W. J. Stainsby	.....	..	3	8	3	125
Easton Hospital[1-3]	Easton, Pa.	J. Kincov	924	20	2	4	2	250
Hamot Hospital[1-3]	Erie, Pa.	J. B. Tredway	2,758	90	1	1	1	200
Westmoreland Hospital	Greensburg, Pa.	W. V. Conn	1,555	45	1	1	2	300
Harrisburg Hospital[1-3]	Harrisburg, Pa.	J. A. Daugherty	4,697	80	1	3	3	250
Harrisburg Polyclinic Hospital[1]	Harrisburg, Pa.	A. W. Cowley	2,406	93	2	4	2	250
Albert Einstein Medical Center—Northern Division[1-3]	Philadelphia	H. L. Goldburgh	2,748	130	2	7	3	150
Albert Einstein Medical Center—Southern Division[1-3]	Philadelphia	F. Leivy-T. Mendell	1,839	68	4	4	3	150
Frankford Hospital[1-3]	Philadelphia	G. E. Mark	189	44	1	1	1	250
Germantown Dispensary and Hospital[1-3]	Philadelphia	R. W. Mays	2,267	121	3	3	3	150
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	H. L. Bockus	1,133	36	2	5	2	...
Hahnemann Medical College and Hospital[3]	Philadelphia	C. L. Brown	2,570	92	3	8	3	75
Hospital of the University of Pennsylvania[1-3]	Philadelphia	F. C. Wood	4,696	149	12	39	3	...
Hospital of the Woman's Medical College of Pa.[1-3]	Philadelphia	W. G. Leaman	1,323	25	1	5	3	110
Jefferson Medical College Hospital[1-3]	Philadelphia	J. E. Deitrick	3,225	112	5	16	2	...
Lankenau Hospital[1-3]	Philadelphia	E. L. Bortz-F. L. Hartmann	2,278	75	2	4	2	100
Methodist Episcopal Hospital[1-3]	Philadelphia	S. R. Vogel	1,956	116	1	3	1	150
Pennsylvania Hospital[1-3]	Philadelphia	G. G. Duncan	2,317	124	7	7	3	20
Philadelphia General Hospital[1-3]	Philadelphia	H. L. Goldburgh	4,542	392	5	15	3	113
Presbyterian Hospital[1-3]	Philadelphia	J. W. Hundley	1,801	72	1	3	3	100
Temple University Hospital[1-3]	Philadelphia	R. A. Kern	2,977	98	4	12	3	...
Woman's Hospital[1-3]	Philadelphia	M. Easby	1,063	..	1	2	2	175
Allegheny General Hospital[1]	Pittsburgh	M. H. McCaffrey	2,210	83	1	3	2	200
Elizabeth Steel Magee Hospital[1-3]	Pittsburgh	L. A. Gregg	1,489	41	1	3	3	125
Mercy Hospital[1-3]	Pittsburgh	W. W. G. Maclachlan	1,200	25	3	9	3	175
Montefiore Hospital[1-3]	Pittsburgh	Y. D. Koskoff	2,315	70	4	9	3	125
Pittsburgh Hospital[1-3]	Pittsburgh	A. V. Morgan	1,525	40	1	1	1	...
Presbyterian Hospital[1-3]	Pittsburgh	A. H. Colwell	2,340	62	3	9	3	125
St. Francis General Hospital and Rehabilitation Institute[1-3]	Pittsburgh	A. P. D'Zmura	2,349	119	1	3	3	200
St. Margaret Memorial Hospital[1]	Pittsburgh	C. J. Bowen	860	26	1	1	1	200
Western Pennsylvania Hospital[1-3]	Pittsburgh	G. Booth	3,507	201	2	6	3	225
Reading Hospital[1-3]	Reading, Pa.	J. R. Spannuth	2,068	138	1	2	2	225
St. Joseph's Hospital[1-3]	Reading, Pa.	J. B. Levan	1,369	..	1	1	1	250
Robert Packer Hospital[1-3]	Sayre, Pa.	S. D. Conklin	4,173	70	3	9	3	150
Scranton State Hospital[1-3]	Scranton, Pa.	M. Goldstein	1,595	87	1	1	2	266
Wilkes-Barre General Hospital[1-3]	Wilkes-Barre, Pa.	G. E. Baker	3,219	50	2	2	1	225
York Hospital	York, Pa.	H. B. Thomas	2,514	115	1	1	1	225
Rhode Island Hospital[1-3]	Providence, R. I.	M. N. Fulton	2,982	219	10	14	3	100
Roper Hospital[1-3]	Charleston, S. C.	V. Moseley	2,651	65	4	8	3	...
Baroness Erlanger Hospital[1-3]	Chattanooga, Tenn.	E. W. Patton	3,854	90	4	7	1	125
Memorial Hospital[1-3]	Chattanooga, Tenn.	W. B. MacGuire	1,829	21	2	2	1	250
St. Mary's Memorial Hospital	Knoxville, Tenn.	B. M. Overholt	3,712	58	3	7	1	300
Baptist Memorial Hospital[1-3]	Memphis, Tenn.	C. V. Dowling	5,835	95	1	3	3	100
John Gaston Hospital[1-3]	Memphis, Tenn.	I. F. Tullis	2,669	332	4	10	3	35
St. Joseph Hospital[1-3]	Memphis, Tenn.	S. Blackwell	3,374	8	1	3	3	100
Baptist Hospital[1-3]	Nashville, Tenn.	R. M. Finks	2,709	38	2	3	1	175
George W. Hubbard Hospital of Meharry Medical College[1-3]	Nashville, Tenn.	F. T. Billings	1,557	76	2	5	3	125
St. Thomas Hospital[1-3]	Nashville, Tenn.	A. B. Scoville	2,216	63	3	6	2	...
Vanderbilt University Hospital[1-3]	Nashville, Tenn.	H. J. Morgan	3,109	83	4	9	3	50
Oak Ridge Institute of Nuclear Studies[1]	Oak Ridge, Tenn.	G. A. Andrews	290	24	..	2	1	167
Baylor University Hospital[1-3]	Dallas, Texas	P. J. Thomas	4,897	124	2	5	3	125
Methodist Hospital[1-3]	Dallas, Texas	T. S. Barnes	1,743	17	1	4	3	125
Parkland Memorial Hospital[1-3]	Dallas, Texas	D. W. Seldin	1,163	93	5	11	3	50
St. Paul's Hospital[1-3]	Dallas, Texas	T. M. Kirksey	3,746	111	3	6	3	125
Harris Hospital[1-3]	Fort Worth, Texas	D. Neighbors	3,988	63	1	4	2	300
University of Texas Medical Branch Hospitals[1-3]	Galveston, Texas	C. T. Stone, Sr.	3,083	158	8	20	3	...
Baylor University School of Medicine Affiliated Hospitals								
Jefferson Davis Hospital[1-3]	Houston, Texas	J. A. Greene	1,786	191	16	24	3	75
Methodist Hospital[1-3]	Houston, Texas	H. W. Cummings, Jr.	2,119	48	3	6	3	120
Veterans Admin. Hospital[1-3]	Houston, Texas	H. D. Bennet	3,136	206	8	24	3	...
Hermann Hospital[1]	Houston, Texas	E. A. Wilkerson	5,699	133	2	6	3	100
St. Joseph's Hospital	Houston, Texas	S. Schnur	3,556	59	1	1	1	225
University of Texas M. D. Anderson Hospital and Tumor Institute[1-3]	Houston, Texas	C. D. Howe	1,818	28	1	8	1	150
Robert B. Green Memorial Hospital[1-3]	San Antonio, Texas	W. W. Bondurant, Jr.	542	56	1	3	2	150
Santa Rosa Hospital[3]	San Antonio, Texas	M. M. Minter	2,289	91	1	1	1	200
Scott and White Memorial Hospitals[1-3]	Temple, Texas	O. B. Gober	5,056	49	2	6	1	250
Thomas D. Dee Memorial Hospital[1-3]	Ogden, Utah	W. P. Daines	1,883	62	2	2	1	250
Dr. W. H. Groves Latter-Day Saints Hospital[1-3]	Salt Lake City	G. Curtis	1,099	80	1	3	3	200
Holy Cross Hospital[1-3]	Salt Lake City	L. W. Macfarlane	1,230	28	1	1	1	175
Salt Lake County General Hospital[1-3]	Salt Lake City	M. M. Wintrobe	1,058	99	6	30	3	175
Bishop DeGoesbriand Hospital[1-3]	Burlington, Vt.	C. M. Terrien	1,813	34	1	2	2	100
Mary Fletcher Hospital[1-3]	Burlington, Vt.	E. L. Amidon	1,602	51	3	6	2	110
Alexandria Hospital[1-3]	Alexandria, Va.	B. C. Jones, Jr.	1,007	25	1	3	1	225
University of Virginia Hospital[1-3]	Charlottesville, Va.	W. Parson	2,835	112	9	24	3	50
Chesapeake and Ohio Hospital[1-3]	Clifton Forge, Va.	A. D. Williams	2,662	28	2	4	1	150

Numerical and other references will be found on page 363.

8. INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Riverside Hospital $^{1-3}$	Newport News, Va.	W. A. Read	1,442	29	2	2	1	250
De Paul Hospital $^{1-3}$	Norfolk, Va.	J. D. Lea	2,036	73	2	4	3	200
Norfolk General Hospital $^{1-3}$	Norfolk, Va.	R. B. Grinnan, Jr.	2,428	102	3	6	3	125
Johnston Willis Hospital $^{1-3}$	Richmond, Va.	J. M. Hutcheson	2,572	82	1	3	1	250
Medical College of Virginia—Hospital Division $^{1-3}$	Richmond, Va.	W. B. Porter	3,710	137	12	21	3	50
Jefferson Hospital	Roanoke, Va.	G. B. Lawson	1,067	48	1	3	1	...
Lewis Gale Hospital $^{1-3}$	Roanoke, Va.	R. H. Jones, Jr.	2,167	33	1	3	1	250
Doctors Hospital $^{1-3}$	Seattle	J. D. Collins	2,040	101	1	2	1	125
King County Hospital Unit No. 1 (Harborview) ^{1}	Seattle	R. H. Williams	5,286	409	6	12	3	110
Providence Hospital ^{1}	Seattle	R. Foster	2,559	82	4	6	2	200
Swedish Hospital $^{1-3}$	Seattle	K. B. Skubi	3,247	172	1	8	1	100
Virginia Mason Hospital $^{1-3}$	Seattle	R. L. King	3,277	74	3	6	3	100
Charleston General Hospital $^{1-3}$	Charleston, W. Va.	W. A. Thornhill, Jr.	2,172	31	2	5	3	175
Memorial Hospital $^{1-3}$	Charleston, W. Va.	P. A. Tuckwiller	2,324	46	1	3	3	225
Chesapeake and Ohio Hospital $^{1-3}$	*Huntington, W. Va.*	*W. E. Bray, Jr*	*2,566*	*32*	*4*	*4*	*1*	*150*
Ohio Valley General Hospital $^{1-3}$	Wheeling, W. Va.	D. A. MacGregor	1,826	59	1	3	3	800
La Crosse Lutheran Hospital $^{1-3}$	La Crosse, Wis.	T. E. Gundersen	2,145	51	1	1	2	300
Madison General Hospital $^{1-3}$	Madison, Wis.	A. B. Weinstein	1,668	107	2	2	1	150
St. Mary's Hospital $^{1-3}$	Madison, Wis.	R. N. Allin	1,857	49	1	3	3	200
University Hospitals ^{1}	Madison, Wis.	O. O. Meyer	4,159	95	6	18	3	50
St. Joseph's Hospital	Marshfield, Wis.	K. H. Doege	1,946	51	1	2	3	800
Columbia Hospital $^{1-3}$	Milwaukee	E. W. Mason	987	45	1	3	3	195
Milwaukee County Hospital $^{1-3}$	Milwaukee	J. Shaiken	9,533	331	8	22	3	209
Milwaukee Hospital $^{1-3}$	Milwaukee	S. M. Evans	2,172	80	2	4	3	195
Mount Sinai Hospital $^{1-3}$	Milwaukee	R. A. Frisch	1,362	19	1	3	3	300
St. Joseph's Hospital $^{1-3}$	Milwaukee	W. L. Coffey, Jr.	2,570	110	1	3	3	200
St. Luke's Hospital $^{1-3}$	Milwaukee	F. J. Millen	759	34	2	2	1	275
Gorgas Hospital $^{1-3}$	Ancon, C. Z.	E. A. Cleve	2,514	55	2	6	..	345
Queen's Hospital $^{1-3}$	Honolulu, T. H.	H. L. Arnold, Sr	2,724	118	4	7	3	125
Bayamon District Hospital $^{1-3}$	Bayamon, P. R.	E. Martinez	1,151	84	1	4	3	150
San Juan City Hospital $^{1-3}$	San Juan, P. R.	R. S. Diaz Rivera	903	38	2	6	..	150

9. MALIGNANT DISEASES

The following services have been approved for one year of training by the Council on Medical Education and Hospitals.

Hospitals, 11; Assistant Residencies and Residencies, 32

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
VETERANS ADMINISTRATION							
Veterans Admin. Hospital ^{1}	Hines, Ill.	L. A. Baker	1,050	107	1	1	...
NONFEDERAL							
City of Hope National Medical Center $^{1-3}$	Duarte, Calif.	H. R. Bierman	678	103	4	4	800
Presbyterian Hospital-Olmsted Memorial $^{1-3}$	Los Angeles	H. M. Kersten	506	27	..	1	125
Collis P. and Howard Huntington Memorial Hospital $^{1-3}$	Pasadena, Calif.	L. G. Craig	608	24	1	2	240
Michael Reese Hospital $^{1-3}$	Chicago	E. Uhlmann	910	72	2	2	...
Westfield State Sanatorium $^{1-3}$	Westfield, Mass.	F. S. Hopkins	808	45	3	3	490
Ellis Fischel State Cancer Hospital $^{1-3}$	Columbia, Mo.	N. D. Rodes	872	...	..	..	...
Montefiore Hospital $^{1-3}$	New York City	D. Laszlo	724	109	5	6	75
American Oncologic Hospital $^{1-3}$	Philadelphia	J. W. Bransfield	1,278	11	3	3	250
Jeanes Hospital $^{1-3}$	Philadelphia	J. W. Carnwath-R. H. Driscoll	2,931	35	6	6	150
University of Texas M. D. Anderson Hospital and Tumor Institute $^{1-3}$	Houston, Texas	E. C. White	1,818	72	4	4	150

10. NEUROLOGICAL SURGERY

The following services have been approved by the Council and the American Board of Neurological Surgery, through the Residency Review Committee for Neurological Surgery, as offering acceptable training in the specialty.

Hospitals, 94; Assistant Residencies and Residencies, 304

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Army Medical Center $^{1-3}$	Washington, D. C.	J. Martin	716	14	1	4	3	...
VETERANS ADMINISTRATION								
Veterans Admin. Hospital $^{1-3}$	Long Beach, Calif.	J. D. French	263	14	1	3	3	...
Veterans Admin. Hospital $^{1-3}$	Los Angeles	W. E. Stern	551	22	1	3	3	...
Veterans Admin. Hospital $^{1-3}$	San Francisco	O. W. Jones, Jr. (See University of California Hospitals)	197	8	1	3	..	...
Veterans Admin. Research Hospital	Chicago	(See Northwestern University Medical Center)						
Veterans Admin Hospital ^{1}	Indianapolis	(See Indiana University Medical Center and Affiliated Hospitals)						
Veterans Admin Hospital		(See University of Louisville Affiliated Hospitals)						
Veterans Admin. Hospital.		J. H. Drew (See Massachusetts General Hospital)						
Veterans Admin. Hospital		J. E. Scarff	220	9	1	4	3	...
Veterans Admin. Hospital $^{1-3}$	Cleveland	(See Western Reserve University Hospitals)						
Veterans Admin. Hospital $^{1-3}$	Memphis, Tenn.	C. D. Scheibert	736	21	1	2	1	...
Veterans Admin. Hospital $^{1-3}$	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)						
Veterans Admin. Hospital ^{1}	White River Junction, Vt.	(See Dartmouth Medical School Affiliated Hospitals)						
Veterans Admin. Hospital $^{1-3}$	Richmond, Va.	(See University of Virginia Hospitals)						
NONFEDERAL								
University Hospital and Hillman Clinic $^{1-3}$	*Birmingham, Ala.*	*J. Galbraith*	648	17	..	1	*3*	*103*
Los Angeles County General Hospital ^{1}	Los Angeles	C. Rand	2,522	16	2	4	3	200
White Memorial Hospital $^{1-3}$	Los Angeles	P. J. Vogel	383	19	1	2	3	146
Collis P. and Howard Huntington Memorial Hospital $^{1-3}$	Pasadena, Calif.	C. H. Shelden	428	15	1	3	2	...
Franklin Hospital $^{1-3}$	San Francisco	H. A. Brown	(See University of California Hospitals)					
University of California Hospitals		...	.....	..	..	..	3	...
Herbert C. Moffitt Hospital	San Francisco	...	.....	..	..	..	..	...
University of California Hospital $^{1-3}$	San Francisco	E. B. Boldrey	555	20	..	5	3	87

Numerical and other references will be found on page 363.

10. NEUROLOGICAL SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Hartford Hospital [1-3]	Hartford, Conn.	W. B. Scoville	1,170	41	..	5	3	75
St. Francis Hospital [1-3]	Hartford, Conn.	R. C. Buckley	846	19	1	1	1	100
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	W. J. German	576	40	..	2	3	60
Georgetown University Hospitals		O. H. Fulcher	.....	..	..	..	3	...
Children's Hospital	Washington, D. C.		37	8	..	..	..	...
District of Columbia General Hospital	Washington, D. C.		.....	..	..	..	..	...
University Hospital	Washington, D. C.		343	9	..	..	..	...
George Washington University Hospitals		J. W. Watts	37	8	..	..	3	...
Children's Hospital	Washington, D. C.		.....	..	..	..	..	...
District of Columbia General Hospital	Washington, D. C.		.....	..	..	..	..	...
University Hospital	Washington, D. C.		258	8	1	1	..	155
Emory University Hospital [1]	Emory University, Ga.		280	10	..	3	3	215
Mercy Hospital [1-3]	Chicago		315	13	1	3	3	100
Northwestern University Medical Center			.....	..	..	..	3	...
Chicago Wesley Memorial Hospital [1-3]	Chicago	P. C. Bucy	71	4	..	3	3	50
Passavant Memorial Hospital [1-3]	Chicago	L. Davis	166	1	1	3	..	50
Veterans Admin. Research Hospital	Chicago	L. Davis	26	3	2	5	..	...
Presbyterian Hospital	Chicago	A. VerBrugghen	551	23	1	2	3	125
St. Luke's Hospital [1-3]	Chicago	E. Oldberg	(See Univ. of Illinois Neuropsychiatric Inst.)					
University of Chicago Clinics [1-3]	Chicago	J. P. Evans	239	18	2	4	3	175
University of Illinois Neuropsychiatric Institute [1]	Chicago	E. Oldberg	(See Neurology)				3	...
Indiana University Medical Center and Affiliated Hospitals			.....	..	..	..	3	...
Indiana University Medical Center Hospital [1]	Indianapolis		320	16	1	3	..	165
Veterans Admin. Hospital	Indianapolis		339	14	..	..	..	...
University Hospitals [1-3]	Iowa City	R. Meyers	418	26	..	3	3	138
University of Kansas Medical Center [1-3]	Kansas City, Kan.	W. P. Williamson	307	19	1	3	3	125
University of Louisville Affiliated Hospitals [1-3]	Louisville, Ky.	R. G. Spurling	650	24	1	3	3	...
Louisville General Hospital [1-3]	Louisville, Ky.	R. G. Spurling	.....	..	..	..	..	83
Veterans Admin. Hospital [1-3]	Louisville, Ky.	E. Grantham	.....	..	..	..	..	...
Charity Hospital of Louisiana								
Tulane University Unit [1]	New Orleans	D. H. Echols	297	20	5	13	1	175
Ochsner Foundation Hospital [1]	New Orleans	D. H. Echols	240	6	1	3	3	200
Johns Hopkins Hospital [1-3]	Baltimore	A. E. Walker	860	18	..	3	3	20
University Hospital [1-3]	Baltimore	J. G Arnold, Jr.	625	25	2	6	3	50
Boston City Hospital [1-3]	Boston	D. Munro	350	13	..	3	3	132
Children's Hospital	Boston	F. D. Ingraham	637	26	..	4	3	...
Lahey Clinic [1-3]	Boston	G. Horrax	837	23	..	8	1	125
Massachusetts General Hospital [1-3]	Boston	J. C. White	1,143	36	2	5	3	66.67
New England Center Hospital [1-3]	Boston	B. Selverstone	269	11	..	3	3	83
Peter Bent Brigham Hospital	Boston	(See Childrens Hospital)						
University Hospital [1-3]	Ann Arbor, Mich.	E. A. Kahn	885	50	2	6	3	175
Grace Hospital [1-3]	Detroit	E. S. Gurdjian	780	22	1	3	3	225
Henry Ford Hospital [1-3]	Detroit	R. S. Knighton	428	18	1	3	3	225
University of Minnesota		W. T. Peyton	442	16	..	6	3	162
Mayo Foundation [1-3]		W. M. Craig	3,294	66	11	28	3	150
Barnes Hospital [1-3]	St. Louis	H. G. Schwartz	501	41	..	3	3	50
Dartmouth Medical School Affiliated Hospitals								
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	R. G. Fisher	575	25	1	3	..	188
Veterans Admin. Hospital	White River Junction, Vt.		.....	..	..	..	..	...
Albany Hospital [1-3]	Albany, N. Y.	E. H. Campbell	1,066	52	1	3	3	...
Kings County Hospital								
University Service [1-3]	Brooklyn	E. J. Browder	3,448	146	8	6	3	104
Buffalo General Hospital [1-3]	Buffalo	W. B. Hamby	514	25	1	4	3	175
Bellevue Hospital Center								
Division IV—New York University Post-Graduate Medical School [1-3]	New York City	T. I. Hoen	290	24	2	8	3	71
Mount Sinai Hospital [1-3]	New York City	L. M. Davidoff	235	15	..	2	3	50
New York Hospital [1-3]	New York City	B. S. Ray	256	..	1	2	3	34
Presbyterian Hospital (Neurological Institute) [1]	New York City	J. L. Pool	752	27	6	9	3	208
St. Vincent's Hospital [1-3]	New York City	C. G. De Gutierrez-Mahoney	952	29	1	3	3	100
Duke University Hospital [1-3]	Durham, N. C.	B. Woodhall	1,159	31	2	8	3	67
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	E. Alexander, Jr.	429	24	1	3	3	125
University of Cincinnati Affiliated Hospitals			.....	..	..	..	3	...
Christ Hospital [1]	Cincinnati	F. H. Mayfield	304	6	1	1	..	200
Cincinnati General Hospital [1-3]	Cincinnati	R. L. McLaurin	802	40	1	3	..	84
Good Samaritan Hospital [1-3]	Cincinnati	F. Mayfield	261	8	..	1	..	175
Cleveland Clinic Hospital [1-3]	Cleveland	W. J. Gardner	807	22	1	4	3	175
Western Reserve University Hospitals			.....	..	..	..	3	...
City Hospital [1-3]	Cleveland	O. W. Elkins	.....	..	..	1	..	...
University Hospital [1-3]	Cleveland	F. E. Nulsen	.....	4	..	3	..	125
Veterans Admin. Hospital	Cleveland	F. E. Nulsen	147	8	1	1	..	...
White Cross Hospital [1-3]	Columbus, Ohio	H. E. Le Fever	472	29	1	3	1	275
University Hospitals [1-3]	Oklahoma City	H. Wilkins	191	7	..	2	2	95
University of Oregon Medical School Hospitals and Clinics [1-3]	Portland, Ore.	J. Raaf	716	30	1	2	3	85
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	R. A. Groff	454	15	1	2	3	100
Hospital of the University of Pennsylvania [1-3]	Philadelphia	F. C. Grant	399	25	2	6	3	50
Jefferson Medical College Hospital [1-3]	Philadelphia	R. Jaeger	377	31	1	1	3	...
Temple University Hospital [1-3]	Philadelphia	M. Scott	741	7	1	3	3	...
Mercy Hospital [1-3]	Pittsburgh	F. H. Bragdon	443	7	1	3	3	175
Pittsburgh Medical Center	Pittsburgh		.....	..	..	..	3	...
Children's Hospital	Pittsburgh		.....	..	..	..	..	...
Presbyterian Hospital [1-3]	Pittsburgh	S. N. Rowe	221	3	1	4	..	125
Woman's Hospital	Pittsburgh		.....	..	..	..	..	...
Robert Packer Hospital [1-3]	Sayre, Pa.	A. B. King	485	17	1	1	1	150
Baptist Memorial Hospital [1-3]	Memphis, Tenn.	R. E. Semmes	964	19	1	3	3	100
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	W. F. Meacham	673	11	1	4	3	50
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	S. R. Snodgrass	564	20	1	3	3	...
Baylor University College of Medicine Affiliated Hospitals	Houston, Texas		.....	..	..	..	3	...
Jefferson Davis Hospital	Houston, Texas	C. Carton	208	20	..	2	..	...
Methodist Hospital [1-3]	Houston, Texas	J. A. Greenwood	919	23	1	4	..	120
Veterans Admin. Hospital [1-3]	Houston, Texas	R. C. L. Robertson	233	17	1	2	..	...
University of Virginia Hospitals								
University Hospital [1-3]	Charlottesville, Va.	W. G. Crutchfield	748	10	1	4	..	50
Veterans Admin. Hospital [1-3]	Richmond, Va.	J. L. Ulmer	285	9	..	2	..	...
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va.	J. M. Meredith	978	27	1	4	3	50
University of Washington Affiliated Hospitals								
King County Hospital Unit No. 1 (Harborview) [1]	Seattle	A. A. Ward. Jr.	419	48	..	1	3	130
University Hospitals [1]	Madison, Wis.	T. C. Erickson	338	30	1	8	3	60

Numerical and other references will be found on page 363.

11. NEUROLOGY

The following services have been approved by the Council and the American Board of Psychiatry and Neurology, through the Residency Review Committee for Psychiatry and Neurology, as offering acceptable training in the specialty.

Hospitals, 88; Assistant Residencies and Residencies, 311

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital [1]	San Francisco	J. W. Kemble	175	..	..	..	3	...
Fitzsimons Army Hospital [1]	Denver	R. E. Clausen, Jr.	196	..	..	..	3	...
Army Medical Center [1-3]	Washington, D. C.	J. F. Hammill	434	3	3	5	3	...
UNITED STATES NAVY								
U. S. Naval Hospital [1-3]	Bethesda, Md.	J. E. Nardini	320	4	2	2	1	...
U. S. Naval Hospital [1]	Philadelphia	J. F. McMullin	351	2	..	..	1	...
UNITED STATES PUBLIC HEALTH SERVICE								
National Institute of Health—Clinical Center [1-3]	Baltimore	M. Shy	212	2	..	4	1	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE								
Freedmen's Hospital [1-3]	Washington, D. C.	E. Y. Williams	178	..	1	2	2	...
St. Elizabeth's Hospital [1-3]	Washington, D. C.	H. Stevens	68	5	1	1	1	...
VETERANS ADMINISTRATION								
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	J. M. Nielsen	1,091	37	1	3	3	...
Veterans Admin. Hospital [1-3]	Los Angeles	A. S. Rose	431	14	1	1	3	...
Veterans Admin. Hospital [1]	San Francisco	H. W. Newman	200	2	2	3	3	...
Veterans Admin. Hospital [1-3]	Denver	W. V. Huber	652	38	1	3	2	...
Veterans Admin. Hospital [1-3]	Washington, D. C.	H. F. Corson	103	1	3	3	3	...
Veterans Admin. Hospital [1]	Hines, Ill.	B. H. Kesert	466	52	2	4	3	...
Veterans Admin. Hospital [1-3]	Topeka, Kan.	M. R. Shaver	302	13	1	2	2	...
Veterans Admin. Hospital [1-3]	Louisville, Ky.	I. O. Dein	191	12	1	2	2	...
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain)	F. A. Quadfasel	707	20	2	5	3	...
Veterans Admin. Hospital [1-3]	Dearborn, Mich.	R. T. Costello	325	10	1	1	1	...
Veterans Admin. Hospital [1-3]	Minneapolis	R. C. Gray	635	10	2	4	3	...
Veterans Admin. Hospital [1]	Kansas City, Mo.	W. A. Stephenson	313	12	1	2	1	...
Veterans Admin. Hospital [1-3]	East Orange, N. J.	J. Sobin	441	53	..	..	1	...
Veterans Admin. Hospital [1-3]	Brooklyn	M. E. Margulies	287	18	1	2	3	...
Veterans Admin. Hospital [1-3]	New York City (Bronx)	H. L. Flowers	769	25	..	2	3	...
Veterans Admin. Hospital	Pittsburgh	E. L. Youngve, Jr.	357	15	2	5	2	...
Veterans Admin. Hospital [1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)						
Veterans Admin. Hospital [1]	Salt Lake City (Ft. Douglas)	M. H. Thomas	105	1	1	2	2	...
Veterans Admin. Hospital [1-3]	Richmond, Va.	J. B. Funkhouser	386	9	3	3	3	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Los Angeles County General Hospital [1]	Los Angeles	J. M. Nielsen	3,293	223	8	3	3	200
White Memorial Hospital [1-3]	Los Angeles	L. B. Mann, Jr.	82	3	1	3	3	146
University of California Hospital [1-3]	San Francisco	R. B. Aird	287	4	..	3	2	87
University of Colorado Medical Center			.....	..	..	..	3	...
Colorado General Hospital [1-3]	Denver	J. W. Stephens	72	8	3	6	..	150
Colorado Psychopathic Hospital	Denver		.....	..	..	..	..	...
Denver General Hospital [1-3]	Denver	L. E. Daniels	67	4	..	..	..	...
Grace-New Haven Community	nn.	G. H. Glaser	510	26	1	3	3	150
District of Columbia General	C.	F. M. Forster	520	12	1	3	2	143
Georgetown University Hospi	C.	F. M. Forster	122	2	4	9	2	20
George Washington Universit	C.	W. Freeman	334	5	..	2	2	...
Cook County Hospital [1-3]	Chicago	W. R. Kirschbaum	347	3	2	2	1	...
Northwestern University Medical Center	Chicago	B. Boshes	.....	..	..	..	3	...
St. Luke's Hospital [1-3]	Chicago	R. Mackay	125	5	1	2	3	50
University of Chicago Clinics [1-3]	Chicago	R. B. Richter	261	7	1	3	2	175
University of Illinois Neuropsychiatric Institute [1]	Chicago	E. Oldberg	689	54	1	6	3	...
Indiana University Affiliated Hospitals			.....	..	..	..	3	...
Indianapolis General Hospital [1-3]	Indianapolis	A. T. Ross	213	16	1	1	..	165
Indiana University Medical Center [1]	Indianapolis	A. Ross	.....	..	2	6	..	165
Methodist Hospital [1-3]	Indianapolis	M. De Armond	534	..	1	1	1	273
University Hospitals [1-3]	Iowa City	A. L. Sahs	1,025	22	2	4	3	118
University of Kansas Medical Center [1-3]	Kansas City, Kan.	A. T. Steegmann	143	9	1	2	2	125
Louisville General Hospital [1-3]	Louisville, Ky.	E. Roseman	846	67	1	3	3	131
Charity Hospital of Louisiana								
Louisiana State University Unit [1]	New Orleans	R. A. Matthews	219	13	1	3	1	100
Tulane University Unit [1]	New Orleans	R. G. Heath	357	7	1	3	3	100
Baltimore City Hospitals [1-3]	Baltimore	J. W. Magladery	800	41	2	2	3	75
Johns Hopkins Hospital [1-3]	Baltimore	F. Ford	594	39	2	2	2	20
University Hospital	Baltimore		.....	..	..	..	3	...
Boston City Hospital [1-3]	Boston	D. E. Denny-Brown	367	10	3	8	3	112
Massachusetts General Hospital [1-3]	Boston	R. D. Adams	658	23	1	2	3	66.67
New England Center Hospital [1-3]	Boston	J. F. Sullivan	250	1	..	3	1	83
University Hospital [1-3]	Ann Arbor, Mich.	R. N. De Jong	811	15	4	13	3	145
Henry Ford Hospital [1-3]	Detroit	L. D. Proctor	336	7	1	3	3	225
University of Minnesota Hospitals			.....	..	..	..	3	...
Minneapolis General Hospital	Minneapolis		.....	..	..	..	..	...
University Hospitals [1-3]	Minneapolis	A. B. Baker	551	14	3	10	..	162
Mayo Foundation [1-3]	Rochester, Minn.	H. W. Woltman	3,818	33	6	8	3	150
Barnes Hospital [1-3]	St. Louis	J. L. O'Leary	520	9	4	10	3	50
Bergen Pines County Hospital [1-3]	Paramus, N. J.	S. A. Sandler	202	30	1	1	1	200
Albany Hospital [1-3]	Albany, N. Y.	R. Graves	410	11	1	3	3	...
Jewish Chronic Disease Hospital [1-3]	Brooklyn	A. M. Rabiner	.....	10	2	3	2	175
Kings County Hospital								
University Service [1-3]	Brooklyn	A. Rabiner	1,611	70	2	4	3	104
Buffalo General Hospital [1-3]	Buffalo	I. M. Hyman	.....	..	1	1	1	175
Edward J. Meyer Memorial Hospital [1]	Buffalo	B. H. Smith	175	2	1	1	1	225
Bellevue Medical Center								
Division II—Cornell University [1-3]	New York City	L. Hausman	433	36	..	2	3	71
Division III—New York University College of Medicine [1-3]	New York City	M. Bender	700	23	6	11	3	105
Fordham Hospital	New York City	J. H. Friedman	351	11	1	1	1	151.58
Goldwater Memorial Hospital [1-3]								
University Division	New York City	I. S. Freiman	492	5	1	3	1	104
Metropolitan Hospital [1-3]	New York City	I. Tarlov	95	3	2	2	1	104
Montefiore Hospital [1-3]	New York City	T. Lawyer, Jr.	594	34	2	5	3	75

Numerical and other references will be found on page 363.

11. NEUROLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Morrisania City Hospital[1-3]	New York City	D. Arbuse	.....	2	1	1	2	105
Mount Sinai Hospital[1-3]	New York City	M. Bender	1,098	27	7	11	3	50
New York City Hospital[1]	New York City	L. V. Lyons	499	16	1	2	2	104
Presbyterian Hospital	New York City	H. H. Merritt	3,011	49	10	15	3	208
North Carolina Memori	hapel Hill, N. C.	T. W. Farmer	169	4	..	1	3	145
Duke University He		E. C. Kunkle	281	2	3	6	2	135
North Carolina Bap		R. L. Masland	196	3	1	3	3	125
Cincinnati General		C. D. Aring	352	85	2	6	3	50
Cleveland Clinic Hospital[1-3]	Cleveland	L. J. Karnosh	116	2	1	2	2	175
University of Oregon Med. School Hospitals and Clinics[1-3]	Portland	R. A. Swank	.....	..	..	..	1	...
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	J. C. Yaskin	652	20	2	3	2	...
Hospital of the University of Pennsylvania[1-3]	Philadelphia	G. Gammon	511	13	3	8	3	...
Jefferson Medical College Hospital[1-3]	Philadelphia	B. J. Alpers	519	5	1	2	3	...
Philadelphia General Hospital[1-3]	Philadelphia	A. M. Ornsteen	1,530	134	2	6	3	118
St. Francis Gen. Hospital and	Pittsburgh	H. L. Mitchell	965	9	..	2	2	250
University of Texas Medical Br	veston, Texas	T. Harris	315	..	2	2	1	...
Baylor University College of Medicine Affiliated Hospitals		W. S. Fields	.....	..	..	..	3	...
Veterans Admin. Hospital[1-3]	Houston, Texas	W. S. Fields	434	31	2	6	..	...
University Hospitals[1]	Madison, Wis.	H. H. Reese	1,045	11	3	9	3	50

12. OBSTETRICS AND GYNECOLOGY

The following services have been approved by the Council and the American Board of Obstetrics and Gynecology.

Hospitals, 443; Assistant Residencies and Residencies, 2,103

FEDERAL

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY									
Letterman Army Hospital[1]	San Francisco	E. A. Zimmermann	OBG	3,210	..	2	6	3	...
Fitzsimons Army Hospital[1]	Denver	J. H. Smith	OBG	2,747	49	..	..	3	...
Army Medical Center[1-3]	Washington, D. C.	H. L. Riva	OBG	3,389	2	3	9	3	...
Brooke Army Hospital[1-3]	San Antonio, Texas	J. W. Simpson	OBG	3,535	6	2	6	3	...
Tripler Army Hospital[1]	Honolulu, T. H.	E. B. Hopper	OBG	4,567	1	4	9	3	...
UNITED STATES NAVY									
U. S. Naval Hospital[1]	Oakland, Calif.	R. W. Tandy, Sr.	OBG	4,809	..	..	..	3	...
U. S. Naval Hospital[1]	San Diego, Calif.	W. S. Baker	OBG	6,530	10	..	..	3	...
U. S. Naval Hospital[1-3]	Great Lakes, Ill.	M. M. Rubin	OBG	3,147	..	..	3	3	...
U. S. Naval Hospital[1-3]	Bethesda, Md.	H. H. Hill	OBG	3,852	5	2	6	3	...
U. S. Naval Hospital[1]	Chelsea, Mass.	L. T. Dorgan	OBG	2,161	53	2	5	3	...
U. S. Naval Hospital[1]	St. Albans, N. Y.	S. L. Arje	OBG	3,232	25	..	..	3	...
U. S. Naval Hospital[1]	Philadelphia	E. L. Woolsey	OBG	3,833	2	..	..	3	...
U. S. Naval Hospital[1-3]	Portsmouth, Va.	P. Peterson	OBG	16,415	..	2	4	3	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE									
Freedmen's Hospital[1-3]	Washington, D. C.	J. W. Ross	OBG	4,508	6	..	6	3	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Carraway Methodist Hospital[2-3]	Birmingham, Ala.	T. M. Boulware	OB	2,386	..	1	1	1	250
University Hospital and Hillman Clinic[1-3]	Birmingham, Ala.	J. R. Garber-W. N. Jones	OBG	6,136	6	3	9	3	108
Lloyd Noland Hospital[2-3]	Fairfield, Ala.	O. T. West	OB	1,320	..	1	3	2	225
Good Samaritan Hospital[3]	Phoenix, Ariz.	C. Van Epps	OBG	3,881	..	1	1	1	250
Maricopa County General Hospital[1-3]	Phoenix, Ariz.	P. Windrow	OBG	2,034	1	..	1	1	300
St. Joseph's Hospital[1-3]	Phoenix, Ariz.	C. B. Warrenburg	OBG	5,455	1	1	1	1	225
University Hospital[1-3]	Little Rock, Ark.	W. E. Brown	OBG	3,122	5	3	9	3	145
Herrick Memorial Hospital[1-3]	Berkeley, Calif.	T. R. Hofmann	OBG	2,896	2	1	2	1	175
San Joaquin General Hospital[1-3]	French Camp, Calif.	D. Harrington	OBG	1,895	2	1	3	3	235
Glendale Sanitarium and Hospital[1]	Glendale, Calif.	J. B. Brown	OBG	2,672	..	1	1	1	165
Seaside Memorial Hospital[1-3]	Long Beach, Calif.	S. G. Pillsbury	OB	4,170	1	2	2	1	150
California Hospital[1-3]	Los Angeles	G. W. Hewitt	OBG	2,463	2	4	10	3	150
Cedars of Lebanon Hospital[1-3]	Los Angeles	E. Krahulik-L. Krohn	OBG	3,904	..	1	2	2	150
Hospital of the Good Samaritan[1-3]	Los Angeles	R. D. McBurney	OBG	3,547	..	1	2	3	200
Los Angeles County General Hospital[1]	Los Angeles	B. J. Hanley	OBG	21,451	38	5	12	3	200
Presbyterian Hospital-Olmsted Memorial[1-3]	Los Angeles	R. R. Herren-H. C. Gernand	OBG	4,497	18	1	3	3	125
Queen of Angels Hospital[2-3]	Los Angeles	A. M. McCarthy	OBG	6,670	4	1	3	3	150
White Memorial Hospital[1-3]	Los Angeles	H. F. Ziprick	OBG	2,604	4	2	4	3	146
Highland Alameda County Hospital[1-3]	Oakland, Calif.	G. F. Calvin	OBG	3,488	6	3	4	3	195
Kaiser Foundation Hospital[1-3]	Oakland, Calif.	R. W. King	OBG	4,289	7	5	15	3	175
Collis P. and Howard Huntington Memorial Hosp.[1-3]	Pasadena, Calif.	G. A. Macer	OBG	3,095	..	1	1	1	250
Mercy Hospital[1]	San Diego, Calif.	P. L. Martin	OBG	7,280	2	2	5	2	200
San Diego County General Hospital[1-3]	San Diego, Calif.	J. A. Rust	OBG	1,657	7	1	2	2	150
Children's Hospital[1-3]	San Francisco	D. A. Dallas	OBG	3,055	1	2	4	2	125
Mary's Help Hospital[1-3]	San Francisco	C. L. Cooley	OBG	2,697	..	1	2	2	150
St. Francis Memorial Hospital[1-3]	San Francisco	C. D. Hart	OBG	2,553	..	3	3	2	250
St. Joseph's Hospital[1-3]	San Francisco	H. Von Geldern	OBG	1,984	..	1	2	2	150
St. Luke's Hospital[3]	San Francisco	J. R. Upton	OBG	1,727	..	2	3	2	200
St. Mary's Hospital[1-3]	San Francisco	P. H. Arnot	OBG	2,034	1	1	3	3	160
San Francisco Hospital									
Stanford University Service	San Francisco	C. E. McLennan	OBG	1,564	..	2	3	1	175
University of California Service[3]	San Francisco	E. B. King	OBG	1,528	..	2	3	1	175
Stanford University Hospitals[1-3]	San Francisco	C. E. McLennan	OBG	2,757	2	4	11	3	80
University of California Hospital[1-3]	San Francisco	H. F. Traut	OBG	2,163	3	3	9	3	87
Santa Clara County Hospital[1]	San Jose, Calif.	J. C. Muir	OBG	1,746	..	1	4	3	...
St. John's Hospital	Santa Monica, Calif.	B. H. Watson	OBG	4,610	..	1	1	2	175
Harbor General Hospital[1-3]	Torrance, Calif.	D. G. Morton	OBG	3,065	6	2	6	3	200
Presbyterian Hospital[1-3]	Denver	M. C. Waddell	OBG	2,491	..	1	1	1	150
St. Joseph's Hospital[1-3]	Denver	H. J. Von Detten	OBG	3,359	..	1	3	3	150
University of Colorado Medical Center		....	.....	.....	..	..	..	..	...
Colorado General Hospital[1-3]	Denver	E. S. Taylor	OBG	2,032	8	6	15	3	100
Denver General Hospital[1-3]	Denver	N. P. Isbel	OBG	2,091	9	..	..	3	...

Numerical and other references will be found on page 363.

12. OBSTETRICS AND GYNECOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Bridgeport Hospital[1-3]	Bridgeport, Conn.	C. Griswold	OB	2,332	1	1	2	2	240
St. Vincent's Hospital[1-3]	Bridgeport, Conn.	F. Kinder	OB	3,534	1	2	4	2	300
Hartford Hospital[1-3]	Hartford, Conn.	L. F. Middlebrook	OBG	8,994	6	1	3	3	50
St. Francis Hospital[1-3]	Hartford, Conn.	L. P. James	OBG	4,958	5	1	3	3	100
New Britain General Hospital[1-3]	New Britain, Conn.	D. A. Bristoll	OBG	2,728	..	1	3	2	200
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	C. L. Buxton-J. A. Fiorito	OBG	6,302	4	4	12	3	50
Hospital of St. Raphael[3]	New Haven, Conn.	C. E. Johnson	OBG	4,053	..	2	5	3	125
Lawrence and Memorial Associated Hospitals[1-3]	New London, Conn.	E. H. Blank	OBG	2,703	..	3	3	1	250
Norwalk Hospital[1-3]	Norwalk, Conn.	G. V. Gorham	OB	2,120	..	1	1	1	160
Delaware Hospital[1-3]	Wilmington, Del.	S. W. Rennie	OBG	4,484	1	1	2	2	180
Columbia Hospital for Women and Lying-In Asylum[1-3]	Washington, D. C.	W. P. Haynes-H. J McNitt	OBG	7,289	..	3	9	3	50
District of Columbia General Hospital[1-3]	Washington, D. C.	J. Parks-A. Marchetti	OBG	7,327	5	3	7	3	143
Doctors Hospital[1-3]	Washington, D. C.	J. K. Cromer	OBG	3,259	1	1	3	2	150
Garfield Memorial Hospital[1-3]	Washington, D. C.	W. Terrell, Jr.-H. Ramsey	OBG	3,450	4	2	6	3	210
Georgetown University Hospital[3]	Washington, D C.	A. A. Marchetti	OBG	4,563	1	3	7	3	20
George Washington University Hospital[1-3]	Washington, D. C.	J. Parks	OBG	5,630	20	1	5	3	150
Providence Hospital[1-3]	Washington, D C.	G Ellis	OBG	3,394	1	1	3	3	200
Sibley Memorial Hospital[1-3]	Washington, D. C.	M. Kaufman	OBG	3,085	..	2	5	2	200
Duval Medical Center[1-3]	Jacksonville, Fla.	F. Richards	OBG	2,336	6	1	2	2	150
St. Luke's Hospital[1]	Jacksonville, Fla.	J. C. Taylor-F. Richards	OBG	3,009	1	2	4	2	200
St. Vincent's Hospital[1-3]	Jacksonville, Fla.	E. F. McCall-V. Hughes.	OBG	6,036	1	2	6	3	135
Jackson Memorial Hospital[1-3]	Miami, Fla.	J. D. Milton	OBG	6,074	7	2	5	3	75
Mount Sinai Hospital[1-3]	Miami Beach, Fla.	H. Kraff	OBG	1,758	1	1	2	2	250
Orange Memorial Hospital[1-3]	Orlando, Fla.	D. D. Brame-H. A. Day	OBG	3,665	3	2	2	2	150
Mound Park Hospital[1]		J. Pilkington	OBG	1,654	..	1	1	1	283
Tampa Municipal Hospital[1-]		A. Wallace, Jr.	OBG	2,181	21	1	3	1	125
Crawford W. Long Memorial Hospital[1-3]	Atlanta, Ga.	R. K. Hancock	OBG	8,282	3	5	10	3	110
Georgia Baptist Hospital[1-3]	Atlanta, Ga.	R. A. Bartholomew	OBG	4,325	5	3	6	3	200
Grady Memorial Hospital[1-3]	Atlanta, Ga.	W. L. Caton	OBG	7,397	8	5	15	3	20
Piedmont Hospital[1-3]	Atlanta, Ga.	C. B. Upshaw	OBG	2,261	..	1	1	1	160
St. Joseph's Infirmary[1-3]	Atlanta, Ga.	M. Benson	OBG	2,609	..	1	3	2	165
University Hospital[1-3]	Augusta, Ga.	R. Torpin	OBG	4,916	5	2	5	3	160
Augustana Hospital[1-3]	Chicago	W. H. Browne	OB	1,185	..	2	2	1	150
Chicago Maternity Center[1-3]	Chicago	B. E. Tucker-H. B. Benaron	OB	4,132	..	3	11	1	150
Cook County Hospital[1-3]	Chicago	A. Webster-F. Falls	OBG	18,440	12	18	18	3	...
Englewood Hospital[3]	Chicago	C. D. Krause	OB	1,588	..	1	1	1	200
Frank Cuneo Memorial Hospital[3]	Chicago	A. Daro-H. O. Maryan	OBG	2,196	2	2	6	2	150
Grant Hospital[1-3]	Chicago	W. J. Reich	OBG	2,193	1	1	3	3	225
Henrotin Hospital[1]	Chicago	J. R. Wolff	OB	958	1	1	1	1	225
Hospital of St. Anthony De Padua[1-5]	Chicago	F. J. Fara	OB	2,197	..	2	2	1	250
Illinois Masonic Hospital[1-3]	Chicago	F. J. Roos	OBG	2,528	..	2	3	2	115
Lewis Memorial Maternity Hospital[1-3]	Chicago	H. E. Schmitz	OBG	3,372	7	4	13	3	50
Loretto Hospital[1-3]	Chicago	J. J. O'Hearn	OB	1,199	..	1	1	1	200
Lutheran Deaconess Home and Hospital[3]	Chicago	A. D. Green	OB	1,441	1	2	2	1	200
Mercy Hospital[1-3]	Chicago	H. E. Schmitz	OBG	1,918	3	..	4	3	100
Michael Reese Hospital[1-3]	Chicago	L. E. Frankenthal	OBG	4,979	..	2	6	3	50
Mount Sinai Hospital[1-3]	Chicago	H. M. Brill	OBG	3,496	1	1	5	3	100
Northwestern University Medical Center									
Chicago Wesley Memorial Hospital[1-3]	Chicago	G. H. Gardner	OBG	3,085	3	2	7	3	50
Passavant Memorial Hospital[1-3]	Chicago	J. I. Brewer	OBG	3,074	..	1	1	3	50
Evanston Hospital[1-3]	Evanston, Ill.	D. N. Danforth	OBG	2,829	3	1	3	3	50
Presbyterian Hospital[1]	Chicago	E. Allen	OBG	2,722	2	3	7	3	125
Provident Hospital[1-3]	Chicago	R. C. Stepto-T. C. Raines	OBG	3,176	33	3	5	3	200
Ravenswood Hospital[1-3]	Chicago	J. Davis	OBG	1,590	..	2	4	1	75
St. Anne's Hospital[1-3]	Chicago	R. J Hawkins	OBG	4,922	1	6	6	3	150
St. Elizabeth Hospital[3]	Chicago	F. J. Walsh	OBG	3,641	2	2	2	2	200
St. Joseph Hospital[1-3]	Chicago	C. Geiger	OBG	1,913	1	2	4	3	200
St. Luke's Hospital[1-3]	Chicago	E. A. Edwards	OBG	2,536	1	4	12	3	50
St. Mary of Nazareth Hospital[1]	Chicago	M. E. Uznanski	OBG	2,572	3	2	2	1	150
Swedish Covenant Hospital[1-3]	Chicago	G. L. Rosene	OB	1,987	..	2	2	1	200
University of Chicago Clinics[1-3] Billings Hospital Chicago Lying-In Hospital and Dispensary	Chicago	M. E. Davis	OBG	6,073	11	14	23	3	175
University of Illinois Research and Educational Hospitals[1]	Chicago	V. C. Freda	OBG	2,673	4	2	6	3	...
Women and Childrens Hospital[2-3]	Chicago	F. Hark-L. Snow	OBG	1,531	1	1	3	3	100
St. Francis Hospital[1-3]	Evanston, Ill.	J. M. Bailey	OBG	4,262	1	1	3	3	175
Little Company of Mary Hospital[1-3]	Evergreen Park, Ill.	P. E. Lawler-W. T. Carlisle	OBG	5,684	3	5	8	3	150
West Suburban Hospital[3]	Oak Park, Ill.	F. H. Falls	OBG	5,401	2	2	4	2	225
Methodist Hospital of Central Illinois[1-3]	Peoria, Ill.	R. W. Brandes	OB	2,560	..	1	1	1	200
St. Francis Hospital[1-3]	Peoria, Ill.	C. J. Heinberger	OBG	4,457	..	1	2	2	...
St. Anthony Hospital[1-3]	Rockford, Ill.	G. T. Burns	OBG	370	..	1	2	1	200
[illegible] General Hospital[1-3]	Indianapolis	J. W. Hofmann	OBG	3,547	1	2	8	3	165
[illegible]	Indianapolis	C. F. Huber	OBG	4,249	1	3	8	3	165
[illegible]	Indianapolis	L. J. Clark	OBG	7,214	2	1	2	3	273
[illegible]	Indianapolis	P. F. Muller	OBG	3,103	2	1	3	3	275
[illegible]	Lafayette, Ind.	F. W. Peyton	OBG	2,214	..	..	2	1	175
[illegible]	Iowa City	J. H. Randall	OBG	2,395	12	2	8	3	118
[illegible]	Kansas City, Kan.	L. A. Calkins	OBG	2,767	3	2	8	3	125
St. Francis Hospital[1-3]	Wichita, Kan.	N. C. Siebert	OBG	4,750	..	1	3	1	275
Wesley Hospital[1-3]	Wichita, Kan.	E. X. Crowley	OBG	4,431	1	1	1	1	175
St. Joseph Hospital[1-3]	Lexington, Ky.	A. B. Barrett	OBG	1,837	1	1	1	1	230
Louisville General Hospital[1-3]	Louisville, Ky.	W. O. Johnson	OBG	3,608	1	3	9	3	105
St. Joseph Infirmary[1-3]	Louisville, Ky.	E. R. Cadden	OBG	3,875	5	1	3	3	185
Charity Hospital of Louisiana									
Independent Unit[1]	New Orleans	A. Jacobs	OBG	4,692	4	3	9	3	100
Louisiana State University Unit[1]	New Orleans	M. L. McCall	OBG	6,670	7	4	12	3	100
Tulane University Unit[1]	New Orleans	C. G. Collins	OBG	6,920	13	4	12	3	100
Hotel Dieu-Sisters Hospital[1]	New Orleans	E. Nelson	OBG	4,389	2	2	4	1	225
Ochsner Foundation Hospital[1]	New Orleans	C. Tyrone	OBG	314	..	2	5	3	200
Southern Baptist Hospital[1]	New Orleans	A. Mickal	OBG	6,534	..	2	6	3	225
Touro Infirmary[1]	New Orleans	A. Caire, Jr.-E. P. Thomas	OBG	4,267	10	2	6	3	100
Confederate Memorial Medical Center[1]	Shreveport, La.	E. E. Dilworth	OBG	5,436	3	3	9	3	125

Numerical and other references will be found on page 363.

12. OBSTETRICS AND GYNECOLOGY—*Continued*

NONFEDERAL

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Baltimore City Hospitals[1-3]	Baltimore	L. H. Douglass-B. C. Compton	OBG	4,480	2	5	13	3	75
Bon Secours Hospital[3]	Baltimore	H. B. McNally-E. Novak	OBG	3,311	2	1	3	3	229
Church Home and Hospital[1-3]	Baltimore	J. K. B. E. Seeger	OB	1,077	6	1	1	1	200
Franklin Square Hospital[1-3]	Baltimore	I. A. Siegel	OBG	1,276	7	2	5	3	225
Hospital for Women[1-3]	Baltimore	J. F. Savage-L. Brady	OBG	5,010	3	7	11	3	220
Johns Hopkins Hospital[1-3]	Baltimore	N. J. Eastman-R. W. Te Linde	OBG	6,311	21	..	12	3	20
Lutheran Hospital[1-3]	Baltimore	W. N. Long, Jr.-W. K. Diehl	OBG	3,677	..	2	6	3	220
Maryland General Hospital[1-3]	Baltimore	D. M. Dixon-J. D. Woodruff	OBG	2,387	10	3	6	3	225
Mercy Hospital[1-3]	Baltimore	J. J. Erwin-F. K. Morris	OBG	3,857	2	2	4	3	...
Provident Hospital and Free Dispensary[1-3]	Baltimore	L. H. Douglass	OB	1,636	..	..	2	1	150
St. Agnes Hospital[1-3]	Baltimore	H. B. McNally-T. S. Bowyer	OBG	2,457	4	1	3	3	125
St. Joseph's Hospital[3]	Baltimore	H. B. Boyle, Jr.-G. A. Galvin	OBG	2,225	..	2	4	3	225
Sinai Hospital[1-3]	Baltimore	I. A. Siegel-A. A. Sondheimer	OBG	5,189	3	3	11	3	110
South Baltimore General Hospital[1-3]	Baltimore	J. K. B. E. Seegar	OB	781	..	3	6	2	150
Union Memorial Hospital[1-3]	Baltimore	J. M. Haws	OB	2,128	1	2	3	2	115
University Hospital[1-3]	Baltimore	L. Douglass-J. Hundley, Jr.	OBG	4,746	7	4	13	3	50
Prince George's General Hospital	Cheverly, Md.	J. F. Warren	OBG	2,648	..	3	3	1	200
Beth Israel Hospital[1-3]	Boston	H. H. Rosenfield	OB	2,592	..	3	4	2	42
Boston City Hospital[1-3]	Boston	B. Tenney, Jr.	OBG	5,226	1	6	15	3	112
Boston Lying-In Hospital[1-3]	Boston	D. E. Reid	OB	7,847	4	6	12	3	50
Carney Hospital[1-3]	Boston	R. J. Heffernan	OBG	863	2	2	6	3	125
Massachusetts Memorial Hospitals[1-3]	Boston	L. Parsons	OBG	1,655	..	2	4	3	50
New England Hospital[1-3]	Boston	M. A. Phillips	OB	1,293	..	1	2	2	50
St. Elizabeth's Hospital[1-3]	Boston	W. J. McDonald	OBG	4,786	..	1	2	3	125
St. Margaret's Hospital[3]	Boston	D. J. McSweeney-J. J. Meehan	OB	3,078	1	2	4	2	125
Booth Memorial Hospital[1-3]	Brookline, Mass.	S. C. Kardon	OB	561	..	2	2	1	200
Free Hospital for Women[1-3]	Brookline, Mass.	G. Van S. Smith	GYN	3,112	..	4	12	3	50
Cambridge City Hospital[1-3]	Cambridge, Mass.	P. P. McGovern	OBG	2,174	..	1	3	3	125
St. Anne's Hospital[3]	Fall River, Mass.	E F. Shay	OBG	1,670	..	2	2	1	150
Quincy City Hospital[1-3]	Quincy, Mass.	L. H. Van Raalte	OBG	249	..	1	2	1	162
St. Joseph Mercy Hospital[1-3]	Ann Arbor, Mich.	H. H. Cummings	OBG	2,286	2	2	4	3	200
University Hospital[1-3]	Ann Arbor, Mich.	N. F. Miller	OBG	2,470	23	3	12	3	145
Detroit Memorial Hospital[1]	Detroit	H. F. Jarvis	OBG	2,230	2	1	3	3	250
Evangelical Deaconess Hospital[1-3]	Detroit	L. Braun	OBG	1,625	..	1	1	1	265
Florence Crittenton Hospital[1-3]	Detroit	H. A. Pearse	OBG	3,847	..	2	6	3	...
Grace Hospital[1-3]	Detroit	O. W. Pickard	OBG	9,385	1	4	16	3	225
Harper Hospital[1-3]	Detroit	H. C. Mack	OBG	5,682	4	3	7	3	225
Henry Ford Hospital[1-3]	Detroit	C. P. Hodgkinson	OBG	3,860	6	2	6	3	225
Herman Kiefer Hospital[1-3]	Detroit	C. S Stevenson	OB	5,570	3	2	4	2	273
Mount Carmel Mercy Hospital[1-3]	Detroit	C. N. Swanson	OBG	8,442	..	3	9	3	225
Providence Hospital[1-3]	Detroit	H. Henderson	OBG	5,357	5	2	5	3	250
Receiving Hospital[1-3]	Detroit	C. S. Stevenson	GYN	1,705	13	2	6	3	225
St. John Hospital[1-3]	Detroit	J. P. Ottaway	OBG	3,397	..	1	3	1	275
St. Joseph Mercy Hospital[1]	Detroit	J. E. Clifford-G. E. B. Rogers	OBG	3,196	2	2	4	3	240
Sinai Hospital[1-3]	Detroit	L. Braun	OBG	2,172	1	2	6	2	275
Woman's Hospital[1-3]	Detroit	R. B. Kennedy-H. M. Nelson	OBG	6,644	9	2	7	3	250
Hurley Hospital[1]	Flint, Mich.	I. H. Gutow	OBG	4,133	7	1	3	2	325
Blodgett Memorial Hosptial[1-3]	Grand Rapids, Mich.	C. M. Bell	OBG	2,944	4	1	2	2	225
Butterworth Hospital[1-3]	Grand Rapids, Mich.	L. C. Bosch	OBG	5,521	18	2	5	3	225
St. Mary's Hospital[1-3]	Grand Rapids, Mich.	J. H. Beaton	OBG	4,025	3	1	2	1	200
Highland Park General Hospital[1]	Highland Park, Mich.	R. Siddall	OBG	3,584	1	1	3	3	300
Pontiac General Hospital[1-3]	Pontiac, Mich.	H. A. Furlong	OBG	4,365	1	1	3	3	300
St. Joseph Mercy Hospital[1-3]	Pontiac, Mich.	F. Gaensbauer	OBG	5,148	2	2	4	3	325
Saginaw General Hospital[1-3]	Saginaw, Mich.	C. E. Toshach	OBG	2,707	1	1	3	3	325
Minneapolis General Hospital[1-3]	Minneapolis	W. P. Sadler	OBG	1,054	4	1	3	3	182
Northwestern Hospital[1-3]	Minneapolis	W. P. Sadler	OBG	3,553	..	1	2	2	200
St. Barnabas Hospital[1-3]	Minneapolis	O. F. Robbins	OBG	3,139	1	2	2	2	...
St. Mary's Hospital[1-3]	Minneapolis	L. A. Lang	OBG	5,730	5	2	4	2	200
University of Minnesota Hospitals[1-3]	Minneapolis	J. L. McKelvey	OBG	1,368	11	2	7	3	162
Mayo Foundation[1-3]	Rochester, Minn.	L. M. Randall	OBG	4,500	10	4	11	3	150
Charles T. Miller Hospital[1]	St. Paul	J. J. Swendson	OBG	2,055	1	1	2	3	185
St. Joseph's Hosp	St. Paul	J. W. Goldsmith	OBG	3,624	..	1	3	3	162
St. Louis County		E. L. Dorsett	OBG	937	1	1	3	3	225
Kansas City Gener		J. G. Webster	OBG	1,535	1	1	4	3	150
Kansas City General Hospital No. 2[1-3]	Kansas City, Mo.	H. L. Gainey	OBG	1,931	7	2	6	3	...
St. Joseph Hospital[1-3]	Kansas City, Mo.	A. B. Sinclair, Jr.	OBG	2,376	..	1	2	2	250
St. Luke's Hospital[1-3]	Kansas City, Mo.	J. M. Singleton	OBG	4,131	..	2	4	3	175
Barnes Hospital[1-3]	St. Louis	W. Allen	OBG	6,507	5	4	10	3	50
De Paul Hospital[1-3]	St. Louis	R. V. Boedeker	OBG	3,596	2	1	3	2	200
Homer G. Phillips Hospital[1-3]	St. Louis	S. M. Monat	OBG	5,914	9	1	8	3	215
Jewish Hospital[1-3]	St. Louis	H. C. Wasserman	OBG	2,651	9	1	4	2	100
Missouri Baptist Hospital[1-3]	St. Louis	J. B. O'Neil	OBG	2,178	2	2	4	1	175
St. John's Hospital[1-3]	St. Louis	M. W. Weis	OB	2,615	..	1	1	1	200
St. Louis City Hospital[1-3]	St. Louis	R. Crossen-L. Hartnett	OBG	2,299	8	4	8	3	190
St. Luke's Hospital[1]	St. Louis	G. J. L. Wulff, Jr.	OBG	1,951	12	..	2	3	200
St. Mary's Group of Hospitals[1-3]	St. Louis	J. A. Hardy, Jr.	OBG	8,366	4	5	11	8	100
Lincoln General Hospital[1-3]	Lincoln, Neb.	H. E. Harvey	OBG	1,374	1	1	1	1	200
St. Elizabeth Hospital[1-3]	Lincoln, Neb.	S. T. Thierstein	OBG	2,435	..	2	2	1	250
Bishop Clarkson Memorial Hospital[1-3]	Omaha	C. F. Moon	OBG	1,532	..	1	1	1	175
Creighton University Medical Center									
Creighton Memorial-St. Joseph's Hospital	Omaha	M. E. Grier	OBG	3,035	8	2	4	3	175
St. Catherine's Hospital	Omaha	M. E. Grier	.....	.....	..	..	..	..	...
Immanuel Hospital[1]	Omaha	H. E. Anderson	OBG	1,741	2	1	1	1	200
University of Nebraska Hospital[1-3]	Omaha	L. S. McGoogan	OBG	1,158	3	1	4	3	...
Cooper Hospital[1-3]	Camden, N. J.	G. B. German-H. P. Shipps	OBG	5,162	3	2	4	3	200
Hackensack Hospital[1-3]	Hackensack, N. J.	H. B. Wilson	OB	2,844	..	2	2	1	125

Numerical and other references will be found on page 363.

12. OBSTETRICS AND GYNECOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Jersey City Medical Center[1-3]	Jersey City, N. J.	E. N. Bookrajian	GYN	941	6	2	5	2	92
Margaret Hague Maternity Hospital[1-3]	Jersey City, N. J.	J. P. Donnelly	OB	10,479	40	12	20	3	67
Monmouth Memorial Hospital[1-3]	Long Branch, N. J.	W. Shanik	OB	1,696	..	2	2	1	200
Harrison S. Martland Medical Center	Newark, N. J.	A. J. Gordon	OBG	.....	..	2	3	3	162.50
Newark Beth Israel Hospital[1-3]	Newark, N. J.	O. Glass	OBG	5,246	10	1	2	3	75
St. Michael's Hospital[1-3]	Newark, N. J.	G. W. Hayes	OBG	3,190	1	1	2	2	125
Passaic General Hospital[1-3]	Passaic, N. J.	W. M. Sullivan	OBG	2,853	4	1	2	1	250
Paterson General Hospital[1-3]	Paterson, N. J.	L. E. Thron-P. E. Rauschenbach	OB	2,742	..	1	1	1	125
Holy Name Hospital[3]	Teaneck, N. J.	J. Prather	OB	2,422	..	1	1	1	200
St. Francis Hospital	Trenton, N. J.	J. R. Harmon	OBG	2,771	7	1	1	2	210
Albany Hospital[1-3]	Albany, N. Y.	T. O. Gamble-A. Wallingford	OBG	4,485	5	2	4	3	...
A. N. Brady Hospital[1-3]	Albany, N. Y.	J. G. Hayes	OB	3,385	23	3	3	2	200
Beth El Hospital[1-3]	Brooklyn	W. Levine	OBG	4,955	2	3	7	3	125
Brooklyn Hospital[1-3]	Brooklyn	J. T. Wallace	OBG	2,870	..	1	4	3	...
Brooklyn Women's Hospital[1-3]	Brooklyn	J. Halperin	OBG	2,662	..	3	3	1	125
Coney Island Hospital[1-3]	Brooklyn	M. G. Der Brucke	OBG	1,351	..	1	2	2	105
Cumberland Hospital[1-3]	Brooklyn	S. Lubin	OBG	2,644	..	4	7	3	...
Greenpoint Hospital[1-3]	Brooklyn	W. C. Meagher	OBG	2,451	1	2	6	2	105
Jewish Hospital[1-3]	Brooklyn	M. Shir-S. A. Wolfe	OBG	7,388	..	2	8	3	75
Kings County Hospital University Service[1-3]	Brooklyn	L. M. Hellman	OBG	10,168	17	8	20	3	70
Long Island College Hospital[1-3]	Brooklyn	M. Glass	OBG	3,424	..	2	5	3	75
Maimonides Hospital[1-3]	Brooklyn	E. Solomons	OBG	4,262	3	2	6	3	85
Methodist Hospital[1-3]	Brooklyn	S. Hall, Sr.-H. Acken, Jr.	OBG	3,922	..	2	8	3	175
Norwegian Lutheran Deaconesses' Home and Hospital[1-3]	Brooklyn	A. S. MacGregor	OBG	2,683	2	2	6	3	135
St. Catherine's Hospital[1-3]	Brooklyn	W. Meagher	OBG	2,552	2	2	6	3	125
St. John's Episcopal Hospital[1-3]	Brooklyn	C. W. Mueller	OBG	2,537	2	1	3	3	175
St. Mary's Hospital[1-3]	Brooklyn	A. A. Schenone	OBG	2,448	..	1	3	3	175
Unity Hospital[1-3]	Brooklyn	A. A. Katz	OBG	2,407	..	2	4	2	100
Wyckoff Heights Hospital[1-3]	Brooklyn	F. W. Benschine	OBG	1,995	..	1	3	1	100
Buffalo General Hospital[1-3]	Buffalo	C. L. Randall	OBG	3,487	3	4	8	3	175
Deaconess Hospital[1-3]	Buffalo	H. Burwig	OBG	3,330	1	3	9	1	275
Edward J. Meyer Memorial Hospital[1]	Buffalo	E. G. Winkler	OBG	1,934	12	1	4	3	179
Millard Fillmore Hospital[1-3]	Buffalo	L. F. McLean	OBG	6,770	2	2	6	3	255
Sisters of Charity Hospital[1-3]	Buffalo	E. G. Winkler	OBG	5,922	3	2	8	3	210
Mary Imogene Bassett Hospital[1-3]	Cooperstown, N. Y.	O. J. Severud	OBG	661	2	1	2	3	145
Flushing Hospital and Dispensary[1-3]	Flushing, N. Y.	F. Carpenter	OBG	5,320	1	1	3	3	150
Meadowbrook Hospital[1-3]	Hempstead, N. Y.	G. T. Lilly	OBG	2,051	13	1	4	3	225
Mary Immaculate Hospital[1-3]	Jamaica, N. Y.	J. P. McManus	OB	2,494	1	1	1	1	120
Queens Hospital Center[1-3]	Jamaica, N. Y.	E. C. Veprovsky	OBG	2,523	13	2	4	3	105
Charles S. Wilson Memorial Hospital[1-3]	Johnson City, N. Y.	G. R. Cheatham	OBG	3,030	8	1	3	3	200
North Shore Hospital	Manhasset, N. Y.	....	OBG	.....	..	..	..	3	...
Nassau Hospital[1-3]	Mineola, N. Y.	A. Wright	OBG	4,069	1	1	2	3	170
Bellevue Medical Center Division III—New York Univ. College of Medicine[1-3]	New York City	W. E. Studdiford	OBG	5,256	17	10	16	3	71
Beth David Hospital[1-3]	New York City	M. Speiser	OBG	1,698	..	2	2	2	...
Beth Israel Hospital[1-3]	New York City	H. C. Falk	OBG	3,634	..	2	8	3	120
Bronx Hospital[1-3]	New York City	A. C. Posner-A. J. Fleischer	OBG	3,704	3	2	6	3	50
Flower and Fifth Avenue Hospitals[1-3]	New York City	C. E. Folsome	OBG	3,302	1	1	3	3	...
Fordham Hospital[1-3]	New York City	M. L. Brandt	OBG	2,119	1	2	4	3	105
Francis Delafield Hospital[1-3]	New York City	H. C. Taylor, Jr.	GYN	377	34	..	5	1	106
French Hospital[1-3]	New York City	C. E. Heaton-H. C. Falk	OBG	1,976	1	2	4	2	83
Harlem Hospital[2-3]	New York City	A. C. Posner-M. Bobrow	OBG	7,336	5	2	6	3	...
Hospital for Joint Diseases[1-3]	New York City	E. L. Hecht	GYN	293	2	1	1	1	80
Jewish Memorial Hospital[3]	New York City	M. Brandt-M. J. Goodfriend	OBG	2,304	..	1	1	1	150
Lenox Hill Hospital[1-3]	New York City	L. O'Donnell-J. C. Kilroe	OBG	2,910	1	1	3	3	180
Lincoln Hospital[1-3]	New York City	W. H. Godsick	OBG	4,247	1	3	7	3	71
Metropolitan Hospital[1-3]	New York City	C. E. Folsome	OBG	3,773	9	3	8	3	104
Misericordia Hospital[1-3]	New York City	J. A. Kelly	OB	1,320	..	1	2	2	100
Morrisania City Hospital[1-3]	New York City	M. Goodfriend	OBG	4,835	5	1	4	3	105
Mount Sinai Hospital[1-3]	New York City	A. Guttmacher	OBG	6,304	5	13	22	3	50
New York City Hospital[1-3]	New York City	E. F. Smith-M. Rashbaum	OBG	2,707	4	1	5	3	101
New York Hospital[1-3]	New York City	R. G. Douglas	OBG	7,168	52	5	20	3	...
New York Infirmary[2-3]	New York City	I. Widenius	OB	627	..	1	1	2	150
New York Polyclinic Medical School and Hospital[1-3]	New York City	E. H. Dennen-D. N. Barrows	OBG	2,062	1	2	4	2	...
New York University-Bellevue Medical Center University Hospital[1-3]	New York City	W. Studdiford	GYN	729	1	..	2	2	...
Presbyterian Hosp. (Sloan Hosp. for Women)[1]	New York City	H. C. Taylor	OBG	7,149	4	6	21	3	208
Roosevelt Hospital[2-3]	New York City	T. C. Peightal	GYN	957	5	1	3	2	116
St. Clare's Hospital[1-3]	New York City	M. J. Jordan	OBG	2,056	4	2	6	3	125
St. Francis Hospital[1-3]	New York City	J. S. Labate	OBG	2,409	1	1	3	3	175
St. Vincent's Hospital[1-3]	New York City	B. J. Pisani	OBG	3,726	1	2	6	3	100
Sydenham Hospital[1-3]	New York City	P. M. Murray	OBG	2,325	5	1	3	3	105
Woman's Hospital Division of St. Luke's Hospital	New York City	A. H. Aldridge	OBG	6,252	3	4	12	3	60
United Hospital[1-3]	Port Chester, N. Y.	C. N. Jeffries	OB	1,226	..	1	1	1	200
Genesee Hospital[3]	Rochester, N. Y.	S. R. Snow, Jr.	OBG	2,908	3	2	4	3	75
Highland Hospital[1-3]	Rochester, N. Y.	F. Fumia	OBG	2,868	..	1	3	3	100
Rochester General Hospital[1-3]	Rochester, N. Y.	J. W. Cooney-J. C. Potter	OBG	3,819	2	1	3	3	100
St. Mary's Hospital[1-3]	Rochester, N. Y.	H. I. Norton	OBG	4,066	1	1	3	3	200
Strong Memorial-Rochester Municipal Hospital[1-3]	Rochester, N. Y.	C. J. Lund	OBG	24,492	7	4	8	3	...
Ellis Hospital[1-3]	Schenectady, N. Y.	W. Mallia-J. Cornell	OBG	2,895	2	3	3	2	150
General Hospital	Syracuse, N. Y.	R. Pieri	OBG	.....	..	..	..	2	...
St. Joseph's Hospital[1-3]	Syracuse, N. Y.	L. Fournier	OBG	3,426	1	2	2	1	191
State University of New York Medical Center[1-3]	Syracuse, N. Y.	E. C. Hughes-C. Clark	OBG	16,004	41	4	12	3	192
North Carolina Memorial Hospital[1]	Chapel Hill, N. C.	R. A. Ross	OBG	949	4	3	6	3	145
Charlotte Memorial Hospital	Charlotte, N. C.	T. W. Huey	OBG	3,542	4	1	2	2	250
Duke University Hospital[1-3]	Durham, N. C.	B. Carter	OBG	3,041	8	4	10	3	42
Lincoln Hospital	Durham, N. C.	L. R. Swift	OBG	900	..	1	1	1	175
Watts Hospital[1-3]	Durham, N. C.	R. L. Pearse	OBG	1,444	..	1	1	1	100
Rex Hospital[1]	Raleigh, N. C.	R. J. Ruark	OBG	3,152	1	1	2	2	200
St. Agnes Hospital[1]	Raleigh, N. C.	P. J. McElrath	OBG	708	1	1	1	1	250
City Memorial Hospital[1-3]	Winston-Salem, N. C.	C. N. Adams	OBG	3,212	1	1	1	1	...

Numerical and other references will be found on page 363.

12. OBSTETRICS AND GYNECOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
North Carolina Baptist Hospitals [1-3]	Winston-Salem, N. C.	F. R. Lock	OBG	2,788	4	3	6	3	125
St. Luke's Hospital	Fargo, N. Dak.	G. W. Hunter	OBG	1,813	2	1	1	1	300
Akron General Hospital [1-3]	Akron, Ohio	N. E. Wentsler	OBG	4,585	..	3	6	3	250
City Hospital [1-3]	Akron, Ohio	A. M. Weil	OBG	7,225	..	3	6	3	250
St. Thomas Hospital [1-3]	Akron, Ohio	E. F. Hellwig	OBG	3,176	5	2	5	2	250
Aultman Hospital [1-3]	Canton, Ohio	J. M. Scott	OBG	4,547	..	4	5	2	275
Mercy Hospital [1-3]	Canton, Ohio	R. K. Ramsayer	OBG	3,874	2	2	5	2	200
Bethesda Hospital	Cincinnati	R. D. Bryant-E. E. Rhoads	OBG	4,807	3	2	5	3	200
Cincinnati General Hospital [1-3]	Cincinnati	S. T. Garber-L. J. Bossert	OBG	4,499	9	3	12	3	50
City Hospital [1-3]	Cleveland	A. E. Bennett	OBG	3,421	4	2	9	3	150
Evangelical Deaconess Hospital [1-3]	Cleveland	J. E. Morgan	OBG	1,966	..	1	3	2	150
Fairview Park Hospital [1-3]	Cleveland	E. D. Richards	OB	3,207	..	2	2	1	...
Lutheran Hospital [1-3]	Cleveland	R. S. Dial	OB	2,002	..	1	2	2	162
Mount Sinai Hospital [1]	Cleveland	L. H. Biskind	OBG	4,965	2	2	6	3	215
St. Alexis Hospital [1-3]	Cleveland	J. E. Slivka	OB	1,218	..	2	2	1	250
St. Ann Hospital [1-3]	Cleveland	J. E. Slivka	OB	3,461	1	3	3	1	...
St. John's Hospital [1-3]	Cleveland	J. V. Heimann-F. G. Fallon	OBG	2,940	1	2	5	2	170
St. Luke's Hospital [1]	Cleveland	G. B. Hurd	OBG	5,047	..	1	4	3	120
University Hospitals [1-3]	Cleveland	A. O. Barnes	OBG	6,222	6	4	15	3	125
Mount Carmel Hospital [1]	Columbus	R. F. Daly	OB	3,732	1	1	2	2	...
Ohio State University Hospitals									
University Hospitals [1-3]	Columbus	J. C. Ullery	OBG	6,036	19	2	8	3	150
St. Ann's Hospital for Women	Columbus, Ohio	Z. J. R. Hollenbeck	OBG	4,651	16	..	..	2	250
White Cross Hospital [1-3]	Columbus, Ohio	R. M. Inglis	OBG	3,571	..	2	3	2	275
Good Samaritan Hospital [1-3]	Dayton, Ohio	H. E. McKnight	OBG	6,498	86	2	4	3	250
Miami Valley Hospital [1-3]	Dayton, Ohio	C. E. Mumma	OB	5,193	1	1	1	1	160
Huron Road Hospital [1-3]	East Cleveland, Ohio	J. J. Woodworth	OBG	4,090	..	2	6	3	210
Marymount Hospital [3]	Garfield Heights, Ohio	A. H. Dindia	OBG	1,625	..	2	2	1	...
Lakewood Hospital [1-3]	Lakewood, Ohio	B. Wylie	OBG	3,756	1	2	3	2	200
St. Rita's Hospital [1-3]	Lima, Ohio	V. A. Noble	OB	2,151	..	1	2	2	225
Maumee Valley Hospital [1-3]	Toledo, Ohio	S. D. Zuker	OB	930	3	1	1	1	...
Mercy Hospital [1-3]	Toledo, Ohio	R. C. King	OBG	3,829	5	1	3	3	250
St. Vincent's Hospital [1-3]	Toledo, Ohio	J. F. Hillabrand	OBG	3,938	3	2	4	3	225
Toledo Hospital [1-3]	Toledo, Ohio	O. E. Todd	OBG	4,035	1	1	3	3	200
St. Elizabeth Hospital [1-3]	Youngstown, Ohio	P. L. Boyle	OBG	4,166	1	2	3	2	300
St. Anthony Hospital	Oklahoma City	G. Rogers	OBG	5,437	6	1	3	3	150
University of Oklahoma Hospitals			OBG	.....	..	..	..	8	...
University Hospitals [1-3]	Oklahoma City	M. Serwer-J. Kelso	.....	2,907	1	2	4	..	85
Wesley Hospital [1]	Oklahoma City	J. W. Records	.....	3,257	4	1	2	..	225
St. John's Hospital [1-3]	Tulsa, Okla.	W. R. R. Loney	OBG	4,161	1	1	2	2	...
Emanuel Hospital [1-3]	Portland, Ore.	C. L. Clancy	OBG	7,116	71	2	6	3	175
St. Vincent's Hospital [2-3]	Portland, Ore.	J. O. McCall, Jr.	OB	2,563	2	1	1	1	175
Univ. of Oregon Med. School Hospitals and Clinics [1-3]	Portland, Ore.	H. C. Stearns	OBG	1,534	6	1	3	3	85
Abington Memorial Hospital [1-3]	Abington, Pa.	R. D. Porter-C. M. Turman	OBG	3,592	2	1	3	3	100
Allentown Hospital [1-3]	Allentown, Pa.	F. C. Schaeffer	OBG	4,079	5	1	2	2	225
St. Luke's Hospital [1-3]	Bethlehem, Pa.	T. E. Schadt	OBG	2,938	1	2	2	2	275
Bryn Mawr Hospital [1-3]	Bryn Mawr, Pa.	J. L. Richards	OBG	3,377	..	1	1	1	100
George F. Geisinger Memorial Hospital [1-3]	Danville, Pa.	R. E. Nicodemus	OBG	1,551	..	2	2	2	125
Thomas M. Fitzgerald Mercy Hospital [1-3]	Darby, Pa.	J. V. Missett, Jr.	OBG	3,750	..	2	2	2	200
Harrisburg Hospital [1-3]	Harrisburg, Pa.	W. P. Dailey	OBG	4,217	..	1	3	3	250
Albert Einstein Medical Center-Northern Division [2-3]	Philadelphia	C. J. Stamm	OBG	2,073	8	1	2	3	150
Albert Einstein Medical Center-Southern Division [1-3]	Philadelphia	L. Israel-A. First	OBG	2,580	3	3	3	3	150
Chestnut Hill Hospital [1-3]	Philadelphia	Z. B. Newton	OBG	1,266	2	1	1	1	100
Episcopal Hospital [2-3]	Philadelphia	J. H. Dugger	OBG	2,808	3	1	3	3	150
Frankford Hospital [1-3]	Philadelphia	G. C. Hanna, Jr.	OBG	3,113	1	..	1	2	250
Germantown Dispensary and Hospital [1-3]	Philadelphia	Z. B. Newton	OBG	4,348	..	2	2	3	150
Graduate Hosp. of the University of Pennsylvania [1-3]	Philadelphia	R. A. Kimbrough	GYN	598	2	1	2	2	...
Hahnemann Medical College and Hospital [3]	Philadelphia	N. F. Paxson-B. V. McFadyen	OBG	4,103	6	3	9	3	75
Hospital of the University of Pennsylvania [1-3]	Philadelphia	C. Bachman-F. Payne	OBG	5,733	23	5	15	3	...
Hospital of the Woman's Medical College of Pennsylvania [1-3]	Philadelphia	A. G. Taylor-M. D. Pettit	OBG	3,813	2	2	5	3	110
Jefferson Medical College Hospital [1-3]	Philadelphia	T. L. Montgomery-L. Scheffey	OBG	5,130	19	6	10	3	25
Lankenau Hospital [1-3]	Philadelphia	R. B. Wilson	OB	813	..	1	1	2	100
Methodist Episcopal Hospital [1-3]	Philadelphia	R. W. Mohler	OBG	921	1	1	3	3	200
Pennsylvania Hospital [1-3]	Philadelphia	R. A. Kimbrough	OBG	2,922	1	7	7	3	20
Philadelphia General Hospital [1-3]	Philadelphia	J. M. Alesbury	OBG	6,458	4	2	6	3	113
Philadelphia General Hospital—Northern Division [1-3]	Philadelphia	J. R. Willson	OB	1,435	1	2	2	1	112
Presbyterian Hospital [1-3]	Philadelphia	J. D. Corbit	OBG	1,939	1	1	3	3	100
Temple University Hospital [1-3]	Philadelphia	J. R. Willson	OBG	4,700	8	4	12	3	...
Woman's Hospital [1-3]	Philadelphia	A. G. Taylor-D. Ashton	OBG	2,450	..	2	5	3	175
Mercy Hospital [1-3]	Pittsburgh	R. A. D. Gillis-G. J. Carlin	OBG	3,651	2	1	3	3	175
Montefiore Hospital [1-3]	Pittsburgh	H. Cohen	OB	1,622	..	1	1	1	125
Pittsburgh Hospital [1-3]	Pittsburgh	E. A. Conti	OBG	2,646	2	1	2	2	...
Pittsburgh Medical Center									
Elizabeth Steel Magee Hospital [1-3]	Pittsburgh	H. A. Power-J. A. Hepp	OBG	9,703	6	4	12	3	125
St. Francis Gen. Hospital and Rehabilitation Institute [1-3]	Pittsburgh	J. H. Carroll-J. A. Hepp	OBG	2,888	3	1	3	3	200
St. Margaret Memorial Hospital [1]	Pittsburgh	R. E. Tafel	OBG	1,386	3	1	1	2	200
South Side Hospital [1-3]	Pittsburgh	J. Hodgkiss-J. A. New	OBG	2,577	2	1	2	2	250
Western Pennsylvania Hospital [1-3]	Pittsburgh		OB	3,265	9	1	1	1	225
Reading Hospital [1-3]	Reading, Pa.	F. B. Nugent	GYN	1,142	2	1	1	1	225
Providence Lying-In Hospital [3]	Providence, R. I.	C. S. Houston	OB	7,739	..	2	2	1	125
Rhode Island Hospital [1-3]	Providence, R. I.	H. C. McDuff, Jr.	GYN	1,106	4	1	2	2	100
Roper Hospital [1-3]	Charleston, S. C.	L. L. Hester	OBG	4,401	3	2	4	3	...
Columbia Hospital [1-3]	Columbia, S. C.	F. B. C. Geibel	OBG	3,442	3	1	3	3	175
McLeod Infirmary [1-3]	Florence, S. C.	R. F. Zeigler	OBG	2,028	..	..	..	1	...
Greenville General Hospital [1-3]	Greenville, S. C.	J. D. Parker	OBG	4,482	5	1	3	3	125
Baroness Erlanger Hospital [1-3]	Chattanooga, Tenn.	H. A. Schwartz	OBG	3,790	1	1	1	1	125
Memorial Hospital [1-3]	Chattanooga, Tenn.	C. L. Suggs, Jr.	OBG	652	1	1	1	1	250
Knoxville General Hospital	Knoxville, Tenn.	H. H. Jenkins	OBG	2,152	2	1	1	2	163
Baptist Memorial Hospital [1-3]	Memphis, Tenn.	H. B. Turner	OBG	5,714	5	1	3	3	100
John Gaston Hospital [1-3]	Memphis, Tenn.	P. C. Schreier	OBG	9,844	8	4	12	3	85
St. Joseph Hospital [1-3]	Memphis, Tenn.	J. J. Redmon	OBG	3,944	1	1	3	3	100
George W. Hubbard Hospital of Meharry Medical College [1-3]	Nashville, Tenn.	W. F. B. James	OB	1,512	1	1	5	3	...

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12. OBSTETRICS AND GYNECOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Baptist Hospital [1-3]	Nashville, Tenn.	S. Bayer	OBG	4,110	1	2	4	3	175
St. Thomas Hospital [1-3]	Nashville, Tenn.	S. Cowan, Jr.	OBG	2,150	1	2	4	2	...
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	F. E. Whitacre	OBG	2,201	3	3	12	3	50
Brackenridge Hospital [1-3]	Austin, Texas	E. K. Blewett	OBG	2,069	..	..	1	1	250
Baylor University Hospital [1-3]	Dallas, Texas	W. K. Strother	OBG	10,394	2	3	7	3	125
Methodist Hospital [1-3]	Dallas, Texas	J. V. Moody	OBG	5,414	3	2	4	3	125
Parkland Memorial Hospital [1-3]	Dallas, Texas	W. F. Mengert	OBG	4,991	5	6	11	3	50
St. Paul's Hospital [1-3]	Dallas, Texas	O. V. Prejean	OBG	6,488	1	2	4	3	125
Hotel Dieu Sisters Hospital [1-3]	El Paso, Texas	E. C Bernell	OBG	1,528	..	1	2	2	150
Harris Hospital [1-3]	Fort Worth, Texas	N. R. Bailey	OBG	6,171	1	1	3	1	300
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	G. L. Jarvis	OBG	2,476	3	3	9	3	...
Baylor University College of Medicine Affiliated Hospitals									
Jefferson Davis Hospital [1-3]	Houston, Texas	H. W. Johnson	OBG	5,373	10	4	10	3	...
Methodist Hospital [1-3]	Houston, Texas	D. V. Wachsman-J. A. Wall	OBG	3,953	..	2	6	3	120
Hermann Hospital [1]	Houston, Texas	T. G. Gready, Jr.-A. M. Faris	OBG	8,666	2	2	6	3	100
St. Joseph's Hospital [1]	Houston, Texas	R. A. Johnston	OBG	9,366	70	2	6	3	150
University of Texas M. D. Anderson Hospital and Tumor Institute [1-3]	Houston, Texas	J. A. Wall	GYN	364	2	..	4	1	150
Baptist Memorial Hospital [1-3]	San Antonio, Texas	H. C. Sweet	OBG	4,615	3	1	3	3	150
Robert B. Green Memorial Hospital [1-3]	San Antonio, Texas	G. G. Passmore	OBG	2,577	3	1	3	3	150
Thomas D. Dee Memorial Hospital [1-3]	Ogden, Utah	V. H. Ward	OBG	3,624	..	2	6	3	250
Dr. W. H. Groves Latter-Day Saints Hospital [1-3]	Salt Lake City	M. S. Sanders	OBG	6,296	3	2	4	2	200
Holy Cross Hospital [1-3]	Salt Lake City	L. Smith	OBG	3,242	2	2	4	3	175
Salt Lake County General Hospital [1-3]	Salt Lake City	E. G. Holmstrom	OBG	1,071	..	1	3	3	125
Bishop De Goesbriand Hospital [1-3]	Burlington, Vt.	W. Slavin	OBG	1,304	..	1	2	1	100
Mary Fletcher Hospital [1-3]	Burlington, Vt.	J. V. S. Maeck	OBG	1,826	5	1	4	2	100
Alexandria Hospital [1-3]	Alexandria, Va.	H. Picot	OBG	3,677	1	2	2	1	250
Arlington Hospital [1-3]	Arlington, Va.	J. B. Jacobs	OBG	2,267	2	1	1	1	150
University of Virginia Hospital [1-3]	Charlottesville, Va.	W. N. Thornton	OBG	2,832	3	2	8	3	50
Lynchburg General Hospital [1-3]	Lynchburg, Va.	J. E. Warren	OB	2,046	2	1	1	1	150
Riverside Hospital [1-3]	Newport News, Va.	W. R. Payne	OBG	3,035	2	2	2	1	250
De Paul Hospital [1-3]	Norfolk, Va.	J. R. Kight	OBG	3,487	3	2	4	3	200
Norfolk General Hospital [1-3]	Norfolk, Va.	B. D. Jones-R. B. Nicholls	OBG	3,835	4	2	4	3	125
Johnston-Willis Hospital [1-3]	Richmond, Va.	E. Rucker	OB	1,741	1	1	1	1	250
Medical College of Virginia-Hospital Division [1-3]	Richmond, Va.	H. H. Ware, Jr.	OB	7,202	2	6	11	3	50
Doctors Hospital [1-3]	Seattle	P. G. Peterson	OBG	2,720	1	1	1	1	125
King County Hospital Unit No 1 (Harborview) [1]	Seattle	R. R. De Alvarez	OBG	1,611	7	2	4	3	110
Providence Hospital [1]	Seattle	J. Clancy	OB	2,516	..	2	2	1	200
Swedish Hospital [1-3]	Seattle	G. F. Thomas	OBG	4,102	1	1	3	2	100
Virginia Mason Hospital [1-3]	Seattle	R. N. Rutherford	OB	2,888	2	1	1	1	100
Sacred Heart Hospital [1-3]	Spokane	R. L. Rotchford	OBG	5,048	4	1	1	1	200
St. Luke's Hospital [1-3]	Spokane	D. W. McKinlay	OBG	1,454	1	1	1	1	150
Memorial Hospital [1-3]	Charleston, W. Va.	J. L. Crites	OBG	2,219	1	2	2	1	225
University Hospitals [1]	Madison, Wis.	J. W. Harris	OBG	836	9	2	4	3	50
Columbia Hospital [1-3]	Milwaukee	F. J. Stoddard	OB	987	..	1	1	1	195
Milwaukee County Hospital [1-3]	Milwaukee	R. S. Cron	OBG	2,189	15	2	4	3	200
Milwaukee Hospital [1-3]	Milwaukee	L. H. Verch	OBG	6,909	22	1	4	3	195
Mount Sinai Hospital [1-3]	Milwaukee	B. E. Urdan	OBG	3,522	..	1	2	2	300
St. Joseph's Hospital [1-3]	Milwaukee	G. S. Kilkenny	OBG	6,656	3	2	6	3	200
St. Luke's Hospital [1-3]	Milwaukee	A. Watts	OBG	1,233	14	2	4	2	275
St. Mary's Hospital [1-3]	Milwaukee	J. D. Owen	OBG	3,139	..	..	3	2	225
Gorgas Hospital [1-3]	Ancon, C. Z.	I. J. Strumpf	OBG	1,326	3	1	3	2	345
Kapiolani Maternity and Gynecological Hospital [1-3]—St. Francis Hospital	Honolulu, T. H.	K. S. Tom	OBG	7,115	4	2	6	3	100
Queen's Hospital [1-3]	Honolulu, T. H.	R. Sakimoto	OBG	3,780	3	2	4	2	125
Bayamon District Hospital	Bayamon, P. R.	....	OBG	.....	..	..	..	1	...
San Juan City Hospital [1-3]	San Juan, P. R.	M. F. Fuster	OBG	4,573	1	2	6	3	150

13. OCCUPATIONAL MEDICINE

The following service is approved by the Council on Medical Education and Hospitals.
Hospitals, 1; Assistant Residencies and Residencies, 2

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Saginaw General Hospital [1-3]	Saginaw, Mich.	R. D. Mudd	282	341,214	1	2	2	325

14. OPHTHALMOLOGY

The following services have been approved by the Council on Medical Education and Hospitals.
Hospitals, 165; Assistant Residencies and Residencies, 610

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital [1]	San Francisco	H. W. Shreck	233	10,708	1	3	3	...
Army Medical Center [1-3]	Washington, D. C.	J. H. King, Jr.	657	6,158	3	7	3	...
Brooke Army Hospital [1-3]	San Antonio, Texas	K. E. Hudson	455	13,560	..	2	3	...

Numerical and other references will be found on page 363.

14. OPHTHALMOLOGY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES NAVY								
U. S. Naval Hospital [1]	Oakland, Calif.	K. J. Palmberg	310	3,966	..	..	3	...
U. S. Naval Hospital [1]	San Diego, Calif.	L. E Wible	417	9,135	..	..	3	...
U. S. Naval Hospital [1-3]	Bethesda, Md.	S. J. Ryan	319	5,673	..	2	3	...
U. S. Naval Hospital [1]	St. Albans, N. Y.	A. C. Hohn	126	7,599	..	..	2	...
U. S. Naval Hospital [1]	Philadelphia	C. O. Parker, Jr.	220	8,357	..	..	3	...
UNITED STATES PUBLIC HEALTH SERVICE								
U. S. Public Health Service Hospital [1-3]	New Orleans	J. B. Peebles	161	2,913	1	2	3	...
U. S. Public Health Service Hospital [1]	Baltimore	W. P. Griffey	139	3,322	..	2	3	...
U. S. Public Health Service Hospital [1-3]	Staten Island, N. Y.	F. Sauter	298	5,058	1	3	3	...
U. S. Public Health Service Hospital	Seattle	H. E. Halden, III	138	4,767	1	2	3	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE								
Freedmen's Hospital [1-3]	Washington, D. C.	C. Cowan	60	2,980	1	1	3	...
VETERANS ADMINISTRATION								
Veterans Admin. Hospital [1]	Tuskegee, Ala.	H. G. Dwiggins	160	1,482	1	3	3	...
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	G. C. Struble	233	2,253	1	2	3	...
Veterans Admin. Hospital [1-3]	Los Angeles	C. S. Mumma	418	3,085	..	2	3	...
Veterans Admin. Hospital [1]	San Francisco	M. Fine-D. O. Harrington	218	1,082	1	3	3	...
Veterans Admin. Hospital [1]	Atlanta, Ga.	F. P. Calhoun, Jr.	153	....	1	3	3	220
Veterans Admin. Research Hospital [1]	Chicago	(See Northwestern University Medical Center)						
Veterans Admin. Hospital [1]	Hines, Ill.	W. A. Mann	529	.....	2	4	2	...
Veterans Admin. Hospital [1-3]	Wadsworth, Kan.	A. W. McAlester, III	107	438	1	2	3	...
Veterans Admin. Hospital [1-3]	Louisville, Ky.	(See University of Louisville Medical Center)						
Veterans Admin. Hospital [1-3]	New Orleans	J. H. Allen	138	.....	1	3	3	...
Veterans Admin. Hospital [1-3]	Fort Howard, Md.	M. E. Randolph	85	.....	1	1	3	...
Veterans Admin. Hospital [1-3]	Dearborn, Mich.	A. D Ruedeman	572	723	..	1	3	...
Veterans Admin. Hospital [1-3]	Minneapolis	E. W. Hansen	126	78	1	3	3	...
Veterans Admin. Hospital [1-3]	St. Louis	H. D. Rosenbaum	105	846	1	3	3	...
Veterans Admin. Hospital [1-3]	Brooklyn	M. A. Lasky	171	.....	1	2	2	...
Veterans Admin. Hospital [1-3]	New York City (Bronx)	A. G. De Voe	318	2,910	1	3	3	...
Veterans Admin. Hospital [1-3]	Cleveland	J. E. L. Keyes	176	2,654	1	2	2	...
Veterans Admin. Hospital [1]	Pittsburgh	R. N. Lehman	166	.....	2	6	3	...
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	W. F. Klotz	...	.....	1	3	3	...
Veterans Admin. Hospital [1-3]	Dallas, Texas	M. Thomas	118	1	1	2	2	...
Veterans Admin. Hospital [1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)						
Veterans Admin. Hospital [1-3]	McKinney, Texas	S. B. Gostin	124	1	1	2	3	...
Veterans Admin. Hospital [1-3]	Richmond, Va.	E. W. Perkins	384	.....	1	3	3	...
Veterans Admin. Hospital [1-3]	Milwaukee (Wood)	J. B. Hitz	244	139	1	4	3	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	T. O. Paul	939	7,436	..	3	2	108
Arkansas Baptist Hospital [1]	Little Rock, Ark.	R. C Cook	543	.....	1	1	1	225
General Hospital of Fresno County [1]	Fresno, Calif.	R. Whitten	191	5,468	1	2	2	300
Los Angeles County General Hospital [1]	Los Angeles	W. J. Endres	...	2,852	1	4	2	200
Los Angeles Eye and Ear Hospital [1-3]	Los Angeles	O. H. Ellis	288	4,267	2	4	2	...
White Memorial Hospital [1-3]	Los Angeles	P. H. Reed	201	7,598	1	2	2	146
Highland-Alameda County Hospital [1-3]	Oakland, Calif.	M. E. Gump	179	3,569	1	1	3	195
San Diego County General Hospital [1-3]	San Diego, Calif.	H. R. Merrill	61	3,462	1	2	2	150
Green's Eye Hospital [1-3]	San Francisco	V. V. Suglian	453	23,633	2	3	2	100
Stanford University Hospitals [1-3]	San Francisco	A. E. Maumenee	882	8,240	1	3	3	80
University of California Hospital [1-3]	San Francisco	F. C. Cordes	397	1	2	5	3	87
Harbor General Hospital [1-3]	Torrance, Calif.	S. R. Irvine	...	7,858	1	2	2	200
University of Colorado Medical Center								
Colorado General Hospital [1-3]	Denver	R W. Danielson	166	8,851	2	4	3	150
Denver General Hospital [1-3]	Denver	G. H. Filmer	...	.....	..	..	..	...
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	R. M. Fasanella	349	7,156	1	3	3	50
District of Columbia General Hospital [1-3]	Washington, D. C.	E. Cummings-R. Cox	135	4,913	1	2	2	143
Episcopal Eye, Ear and Throat Hospital [3]	Washington, D. C.	H. R. Downey	1,554	34,609	2	6	3	150
Jackson Memorial Hospital [1-3]	Miami, Fla.	K. S. Whitmer	439	3,289	2	6	3	75
Grady Memorial Hospital [1-3]	Atlanta, Ga.	F. P. Calhoun, Jr.	437	15,513	2	6	3	20
Chicago Eye, Ear, Nose and Throat Hospital [1-3]	Chicago	A. A. Stonehill	503	13,917	2	4	2	100
Cook County Hospital [1-3]	Chicago	J. E. Lebensohn	533	17,668	6	6	2	...
University of Illinois Hospitals		W. F. Hughes, Jr.	...	.....	..	..	3	...
Illinois Eye and Ear Infirmary	Chicago		1,478	57,030	11	22	..	108
Illinois Research and Education Hospitals	Chicago		135	9,067	1	2	3	...
Michael Reese Hospital [1-3]	Chicago	T. Zekman	770	4,454	2	3	2	75
Northwestern University Medical Center								
Chicago Wesley Memorial Hospital [1-3]	Chicago	W. A. Mann	363	.....	1	2	3	50
Passavant Memorial Hospital [1-3]	Chicago	D. Vail	477	.....	2	2	2	50
Veterans Admin. Research Hospital [1]	Chicago	E. E. Merz	9	.....	..	1	1	...
Evanston Hospital [1-3]	Evanston, Ill.	G. R. Soper	154	.....	1	1	1	...
Presbyterian Hospital [1]	Chicago	J. M. Donegan	403	5,571	2	8	2	125
Provident Hospital [1-3]	Chicago	W. M. Jones	322	3,287	1	3	1	200
St. Luke's Hospital [1-3]	Chicago	J. W. Clark	275	.....	1	2	2	50
University of Chicago Clinics [1-3]	Chicago	F. W. Newell	304	8,605	1	3	3	175
Woodlawn Hospital [1-3]	Chicago	F. M. Whitsell	466	.....	1	1	1	150
Indiana University Medical Center and Affiliated Hospitals								
Indianapolis General Hospital [1-3]	Indianapolis	E. W. Dyar	273	9,319	2	4	2	165
Indiana University Medical Center [1]	Indianapolis	F. M. Wilson	314	4,961	3	9	2	165
University Hospitals [1-3]	Iowa City	A. E. Braley	1,372	4,144	2	6	3	118
University of Kansas Medical Center [1-3]	Kansas City, Kan.	A. Lemoine	611	4,944	1	3	2	125
University of Louisville Medical Center								
Louisville General Hospital [1-3]	Louisville, Ky.	C. D. Townes	190	181,222	..	2	2	105
Veterans Admin Hospital [1-3]	Louisville, Ky.	C. D. Townes	126	647	1	2	3	...
Charity Hospital of Louisiana								
Independent Unit	New Orleans	J. H. La Rose	388	4,280	1	3	3	100
Louisiana State University Unit [1]	New Orleans	G. M. Haik	610	9,617	1	3	3	100
Tulane University Unit [1]	New Orleans	J. H. Allen	498	8,963	1	3	3	100
Eye, Ear, Nose and Throat Hospital	New Orleans	W. B. Clark	1,468	13,969	..	10	3	125
Touro Infirmary [1]	New Orleans	A. L. Braunstein	77	.....	1	1	1	100

Numerical and other references will be found on page 363.

14. OPHTHALMOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Baltimore Eye, Ear, Nose and Throat Charity Hospital[1-3]	Baltimore	C. A. Clapp	1,228	12,023	1	3	3	150
Johns Hopkins Hospital[1-3]	Baltimore	A. C. Woods	1,953	16,218	..	6	3	20
University Hospital[1-3]	Baltimore	....	22	324	1	2	2	50
Boston City Hospital[1-3]	Boston	D. R. Alpert	534	20,843	..	7	1	132
Massachusetts Eye and Ear Infirmary[1-3]	Boston	E. B. Dunphy	3,703	41,206	4	11	3	500
Massachusetts Memorial Hospitals[1-3]	Boston	T. Gunderson	276	6,064	1	2	2	50
University Hospital[1-3]	Ann Arbor, Mich.	F. B. Fralick	615	12,620	3	9	3	145
Harper Hospital[1-3]	Detroit	A. D. Ruedemann	1,413	......	1	3	3	225
Henry Ford Hospital[1-3]	Detroit	J. Guyton	388	20,000	5	14	3	225
Receiving Hospital[1-3]	Detroit	A. D. Ruedemann	660	12,621	2	13	3	100
Minneapolis General Hospital[1-3]	Minneapolis	W. K. Haven	174	2,698	1	2	3	182
University of Minnesota Hospitals[1-3]	Minneapolis	E. W. Hansen	170	......	1	4	3	162
Mayo Foundation[1-3]	Rochester, Minn.	C. W. Rucker	672	37,553	5	17	3	150
Charles T. Miller Hospital[1]	St. Paul	E. P. Burch	534	3,499	1	3	3	185
St. Louis County Hospital[1-3]	Clayton, Mo.	D. Bisno	28	1,223	1	3	1	225
Kansas City General Hospital No. 1[1-3]	Kansas City, Mo.	A. J. Baer	117	3,435	..	2	2	150
Barnes Hospital[1-3]	St. Louis	B. Becker	1,729	......	6	10	3	50
Homer G. Phillips Hospital[1-3]	St. Louis	B. Becker	(Included in Otolaryngology)			..	..	...
St. Louis City Hospital[1-3]	St. Louis	D. Bisno	143	5,627	1	2	2	190
St. Mary's Group of Hospitals[1-3]	St. Louis	R. D. Mattis	252	6,311	1	3	3	100
University of Nebraska Hospital[1-3]	Omaha	J. H. Judd	136	2,613	1	2	2	...
Jersey City Medical Center[1-3]	Jersey City, N. J.	F. X. Brophy	578	......	1	3	3	92
Newark Eye and Ear Infirmary[1-3]	Newark, N. J.	L. W. Hughes	1,284	1	2	2	1	125
Brooklyn Eye and Ear Hospital[1-3]	Brooklyn	W. V. Moore	3,245	48,610	3	6	2	100
Jewish Hospital[1-3]	Brooklyn	M. Lasky	.....	......	1	2	2	75
Kings County Hospital University Service[1-3]	Brooklyn	W. Moehle	379	10,576	2	4	2	104
Long Island College Hospital[1-3]	Brooklyn	H. F. Schilback	213	3,164	1	2	2	75
Buffalo General Hospital[1-3]	Buffalo	I. J. Koenig	388	1,883	1	1	2	200
Edward J. Meyer Memorial Hospital[1]	Buffalo	I. J. Koenig	94	......	1	2	2	179
Queens Hospital Center[1-3]	Jamaica, N. Y.	T. D'Angelo	199	3,415	1	2	2	105
Nassau Hospital[1-3]	Mineola, N. Y.	K. Brown	589	......	1	1	3	170
Bellevue Medical Center Division IV—New York University Post-Graduate Medical School[1-3]	New York City	A. DeVoe	491	17,005	4	10	3	71
Beth Israel Hospital[1-3]	New York City	M. L. Berliner	148	2,767	1	1	1	135
Bronx Eye and Ear Infirmary[1-3]	New York City	N. Gould-S. Epstein	951	15,759	1	2	2	100
Goldwater Memorial Hospital[1-3]	New York City	S. Fox	1,803	258	1	3	2	104
Harlem Eye and Ear Hospital[1-3]	New York City	P. Muller	398	14,071	1	3	1	50
Lenox Hill Hospital[1-3]	New York City	B. F. Payne	373	......	1	1	3	180
Manhattan Eye, Ear and Throat Hospital[1-3]	New York City	R. T. Paton	2,902	56,004	5	10	2	...
Metropolitan Hospital[1-3]	New York City	C. A. Turtz	70	......	1	2	1	104
Montefiore Hospital[1-3]	New York City	S. Gartner	144	3,338	1	2	2	75
Mount Sinai Hospital[1-3]	New York City	J. Laval-D. Wexler	411	10,033	1	2	2	50
New York City Hospital[1-3]	New York City	I. Givner	155	5,242	1	2	2	104
New York Eye and Ear Infirmary[1-3]	New York City	B. F. Payne	3,176	61,448	6	18	3	50
New York Hospital[1-3]	New York City	J. M. McLean	631	12,909	2	4	3	34
New York Polyclinic Medical School and Hospital[1-3]	New York City	H. H. Romaine	69	7,495	1	3	2	...
Presbyterian Hospital[1]	New York City	J. H. Dunnington	2,763	28,580	3	9	3	208
St. Luke's Hospital[1-3]	New York City	W. G. Frey	258	5,864	1	2	2	75
St. Mary's Hospital[1-3]	Rochester, N. Y.	C. Sullivan	439	1,248	1	1	2	200
Strong Memorial-Rochester Municipal Hospital[1-3]	Rochester, N. Y.	J. F. Gipner	3,341	......	1	2	2	...
Sea View Hospital[1-3]	Staten Island, N. Y.	S. L. Saltzman	1,532	......	1	1	1	157
State University of New York Medical Center[1-3]	Syracuse, N. Y.	F. R. Webster	644	3,161	1	2	2	192
Grasslands Hospital[1-3]	Valhalla, N. Y.	C. Wood	107	3,952	1	3	3	175
North Carolina Memorial Hospital[1]	Chapel Hill, N. C.	F. C. Winter	46	......	1	2	3	145
Duke University Hospital[1-3]	Durham, N. C.	W. B. Anderson	481	10,182	3	8	3	67
McPherson Hospital[1-3]	Durham, N. C.	S. D. McPherson	600	18,807	1	3	3	100
North Carolina Baptist Hospitals[1-3]	Winston-Salem, N. C.	R. W. Roberts	133	1,725	1	3	3	125
City Hospital[1-3]	Cleveland	R. J. Nicholl	211	6,025	..	2	2	178
Cleveland Clinic Hospital[1-3]	Cleveland	R. J Kennedy	363	18,476	2	6	3	175
St. Luke's Hospital[1]	Cleveland	M. W. Jacoby	464	899	1	1	2	120
University Hospitals[1-3]	Cleveland	L. V. Johnson	821	7,047	1	3	2	125
Ohio State University Hospitals University Hospitals[1-3]	Columbus, Ohio	W. H. Havener	410	10,770	2	7	3	150
University Hospitals[1-3]	Oklahoma City	J. R. Reed	365	2,960	1	3	2	85
University of Oregon Medical School Hospitals and Clinics[1-3]	Portland, Ore.	K. C. Swan	250	12,103	2	6	3	...
George F. Geisinger Memorial Hospital[1-3]	Danville, Pa.	A. L. Rhoades	335	7,473	1	2	2	125
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	E. B. Spaeth	991	2,625	3	5	2	...
Hospital of the University of Pennsylvania[1-3]	Philadelphia	F. H. Adler	609	8,334	3	9	3	...
Jefferson Medical College Hospital[1-3]	Philadelphia	A. E. Town	138	4,660	1	3	3	...
Philadelphia General Hospital[1-3]	Philadelphia	....	142	4,150	1	2	2	113
Temple University Hospital[1-3]	Philadelphia	G. G. Gibson	228	3,616	2	6	3	...
Wills Eye Hospital[1-3]	Philadelphia	....	4,059	89,733	8	16	2	...
Montefiore Hospital[1-3]	Pittsburgh	H. Thorpe	510	1,947	1	3	3	125
Pittsburgh Medical Center Eye and Ear Hospital[1-3]	Pittsburgh	M. F. McCaslin	2,262	8,309	1	5	3	125
Robert Packer Hospital[1-3]	Sayre, Pa.	H. Rentschler	1,310	5,049	1	1	1	150
Roper Hospital[1-3]	Charleston, S. C.	P. G. Jenkins	193	......	1	3	2	83
John Gaston Hospital[1-3]	Memphis, Tenn.	P. M. Lewis	238	......	2	2	2	35
Memphis Eye, Ear, Nose and Throat Hospital[3]	Memphis, Tenn.	P. M. Lewis	1,568	......	..	4	2	150
Parkland Memorial Hospital[1-3]	Dallas, Texas	C. W. Browning	183	4,416	..	3	2	50
University of Texas Medical Branch Hospitals[1-3]	Galveston, Texas	G. Robertson	268	5,769	..	4	2	...
Baylor University College of Medicine Affiliated Hospitals								
Jefferson Davis Hospital[1-3]	Houston, Texas	E. L. Goar	314	9,363	..	3	2	...
Veterans Admin. Hospital[1-3]	Houston, Texas	E. L. Goar	275	......	1	3	3	...
Scott and White Memorial Hospitals[1-3]	Temple, Texas	E. R. Veirs	388	6,847	1	1	2	250
University of Virginia Hospital[1-3]	Charlottesville, Va.	E. W. Burton	397	2,987	2	4	3	50
Medical College of Virginia-Hospital Division[1-3]	Richmond, Va.	D. Guerry, III	315	6,860	1	3	3	50
Gill Memorial Eye, Ear and Throat Hospital[3]	Roanoke, Va.	E. G. Gill	2,387	24,065	1	3	3	...
King County Hospital Unit No. 1 (Harborview)[1]	Seattle	R. C. Laughlin	118	......	..	1	2	130
University Hospitals[1]	Madison, Wis.	P. S. Duehr	448	4,070	1	3	3	50
Milwaukee County Hospital[1-3]	Milwaukee	E. F. Carl	319	7,619	2	4	2	200
Gorgas Hospital[1-3]	Ancon, C. Z.	R. H. Rupp	406	......	1	3	3	315
San Juan City Hospital	San Juan, P. R.	G. Pico	...	......	1	2	2	150

Numerical and other references will be found on page 363.

15. ORTHOPEDIC SURGERY

Type of training acceptable to Board: A—Adult orthopedics; C—Children's orthopedics; F—Fractures. The following services have been approved by the Council and the American Board of Orthopedic Surgery, through the Residency Review Committee for Orthopedic Surgery, as offering acceptable training in adult orthopedics, children's orthopedics, and fractures. Training in the basic sciences is given either as an integral part of these services or as a separate course. Services collaborating in an integral plan of training are designated by a program number, a list of which is found on pages 318-319.

Residents completing their training in these hospitals are eligible for full certification by the American Board of Orthopedic Surgery, including children's orthopedic surgery.

Hospitals, 198; Assistant Residencies and Residencies, 807

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Program Identification	Beginning Stipend Offered [8]
FEDERAL									
UNITED STATES ARMY									
Army Medical Center [1-3]	Washington, D. C.	E. A. Bray	ACF	1,067	1	3	9	..	...
Brooke Army Hospital [1-3]	San Antonio, Texas	J. W. Batch	ACF	2,086	2	4	12	..	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE									
Freedmen's Hospital [1-3]	Washington, D. C.	J. R. Gladden	ACF	274	1	..	1	..	...
VETERANS ADMINISTRATION									
Veterans Admin. Hospital [1-3]	Birmingham, Ala.	D. G. Vesley	AF	286	3	..	..	41	...
Veterans Admin. Hospital [1]	San Francisco	L. C. Abbott— D. E. King	AF	234	..	1	3	2, 3	...
Veterans Admin. Hospital [1]	Hines, Ill.	H. A. Sofield	AF	1,065	46	6	12	50	...
Veterans Admin. Hospital [1]	Indianapolis	G. J. Garceau	AF	424	2	..	1	8	...
Veterans Admin. Hospital [1]	Des Moines, Iowa	D. N. Gibson	AF	1,261	3	1	1	55	...
Veterans Admin. Hospital [1-3]	Wadsworth, Kan.	R. L. Diveley	AF	179	4	2	4	18	...
Veterans Admin. Hospital [1-3]	Louisville, Ky.	J. Lyford, III	AF	541	4	1	4	9	...
Veterans Admin. Hospital [1-3]	New Orleans	R. H. Alldredge	AF	374	1	1	3	10	...
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain)	J. S. Barr	AF	1,064	13	2	6	13	...
Veterans Admin. Hospital [1-3]	Minneapolis	E. T. Evans	AF	660	6	3	7	16	...
Veterans Admin. Hospital [1]	Kansas City, Mo.	R. L. Diveley	AF	195	1	1	5	..	...
Veterans Admin. Hospital [1-3]	Brooklyn	S. Chessid	AF	684	2	1	3	52	...
Veterans Admin. Hospital [1-3]	Buffalo	W. M. Chardack	AF	512	3	1	2	24	...
Veterans Admin. Hospital [1-3]	New York City (Bronx)	P. D. Wilson	AF	579	2	1	4	22	...
Veterans Admin. Hospital [1-3]	Durham, N. C.	R. Wrenn	AF	671	2	1	3	..	...
Veterans Admin. Hospital [1-3]	Cleveland	W. H. McGaw	AF	288	..	3	6	27	...
Veterans Admin. Hospital [1]	Oklahoma City	W. K. West	AF	.....	2	0	1	53	...
Veterans Admin. Hospital	Columbia, S. C.	J. T. Green	AF	.....	1	1	3	45	...
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	D. M. Street	AF	1,695	1	3	8	1	...
Veterans Admin. Hospital [1-3]	Dallas, Texas	L. L. Lankford	AF	328	1	2	7	47	...
Veterans Admin. Hospital [1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)							
Veterans Admin. Hospital	Salt Lake City	J. A. Gubler	A	324	3	..	1	34	...
Veterans Admin. Hospital [1-3]	Richmond, Va.	R. D. Butterworth	AF	937	1	1	3	35	...
Veterans Admin. Hospital [1-3]	Milwaukee (Wood)	P. L. Carnesale	AF	1,126	11	1	5	40	...
NONFEDERAL									
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	J. D. Sherrill	ACF	985	4	2	6	44	108
City Hospital	Mobile, Ala.	W. C. Hannon	ACF	523	2	1	1	..	225
Arkansas Children's Hospital [1]	Little Rock, Ark.	S. Thompson	C	455	2	..	2	1	250
Los Angeles County General Hospital [1]	Los Angeles	J. V. Luck	ACF	3,979	15	5	14	..	200
Orthopaedic Hospital	Los Angeles	A. Brockway	ACF	2,400	1	2	5	..	150
Samuel Merritt Hospital [1]	Oakland, Calif.	H. H. Hitchcock	AF	1,438	2	2	2	2	195
Children's Hospital [1-3]	San Francisco	L. C. Abbott	C	283	..	..	2	2	175
Franklin Hospital [1-3]	San Francisco	L. C. Abbott	A	1,169	2	1	3	2	116
San Francisco Hospital									
Stanford University Service	San Francisco	F. J. Cox	AF	823	1	..	2	2, 3	175
University of California Service [3]	San Francisco	E. R. Schottstaedt	AF	975	..	..	1	2, 3	155
Shriners Hospital for Crippled Children [1]	San Francisco	F. C. Bost	C	291	..	2	2	2	155
Stanford University Hospitals [1-3]	San Francisco	D. E. King	AC	1,175	..	1	4	3	80
University of California Hospital [1-3]	San Francisco	L. C. Abbott	A	282	3	1	3	2	87
Children's Hospital [1-3]	Denver	H. C. Hughes	C	726	1	..	2	4	160
University of Colorado Medical Center									
Colorado General Hospital [1-3]	Denver	A. Thomas	AF	307	4	1	5	4	150
Denver General Hospital [1-3]	Denver	J. S Miles	AF	627	16	..	..	4	...
Hartford Hospital [1-3]	Hartford, Conn.	M. Pike	AF	1,346	55	1	4	5	75
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	C. O. Bechtol	AF	927	10	..	4	6	50
Hospital of St. Raphael [3]	New Haven, Conn.	R. Fuldner	AF	557	..	2	6	43	125
Newington Home and Hospital for Crippled Children [1-3]	Newington, Conn.	B. H. Curtis	C	473	1	..	3	5	200
Alfred I. du Pont Institute of the Nemours Foundation [1-3]	Wilmington, Del.	A. R. Shands, Jr.	C	281	..	2	2	19, 20	150
District of Columbia General Hospital [1-3]	Washington, D. C.	M. C. Cobey— J. Neviaser	ACF	927	7	3	5	..	143
American Legion Hospital for Crippled Children [1-3]	St. Petersburg, Fla.	R. C. Lonergan	C	688	1	..	1	7	150
Grady Memorial Hospital [1-3]	Atlanta, Ga.	R. P. Kelly	ACF	716	4	3	9	..	20
University Hospital [1-3]	Augusta, Ga.	P. B. Wright	ACF	878	2	2	4	..	160
Children's Memorial Hospital [1-3]	Chicago	C. N. Pease	C	127	..	..	1	7	75
Cook County Hospital [1-3]	Chicago	F. N. Shapiro	ACF	617	7	4	4	..	...
Northwestern University Medical Center									
Chicago Wesley Memorial Hospital [1-3]	Chicago	E. L. Compere	ACF	1,595	..	1	3	7	50
Passavant Memorial Hospital [1-3]	Chicago	E. Hauser	A	684	2	1	3	7	50
Evanston Hospital [1-3]	Evanston, Ill.	V. Turner	AF	777	..	1	1	7	...
St. Elizabeth Hospital [3]	Chicago	C. S. Scuderi	F	768	3	1	1	7	200
Shriners Hospital for Crippled Children [1-3]	Chicago	H. A. Sofield	C	283	..	3	3	50	...
University of Chicago Clinics [1-3]	Chicago	C. H. Hatcher	ACF	836	3	2	5	..	175
University of Illinois Research and Educational Hospitals [1]	Chicago	F. A. Chandler	ACF	786	10	2	6	..	...
St. Francis Hospital [1-3]	Evanston, Ill.	J. J. Fahey	AF	1,074	2	2	2	7	175
West Suburban Hospital [3]	Oak Park, Ill.	H. A. Sofield	AF	744	3	1	1	50	225
St. Francis Hospital [1-3]	Peoria, Ill.	H. E. Cooper	ACF	1,856	6	1	2	..	...
Indianapolis General Hospital [1-3]	Indianapolis	L. Thomas	AF	810	8	2	6	8	165
Indiana University Medical Center [1]	Indianapolis	G. J. Garceau	ACF	849	3	..	7	8	215
St. Vincent's Hospital [1-3]	Indianapolis	G. J. Garceau	AF	883	1	1	2	8	275
University Hospitals [1-3]	Iowa City	C. B. Larson	ACF	2,219	9	4	10	55	118
University of Kansas Medical Center [1-3]	Kansas City, Kan.	J. B. Weaver	ACF	544	1	1	3	..	125
Good Samaritan Hospital [1]	Lexington, Ky.	K. Thompson	ACF	1,329	..	1	1	59	225
St. Joseph Hospital [1-3]	Lexington, Ky.	M. G. Brown	ACF	775	5	1	3	59	230
Kosair Crippled Children Hospital [1-3]	Louisville, Ky.	K. A. Fischer	C	729	..	4	4	9	200
Louisville General Hospital [1-3]	Louisville, Ky.	K. A. Fischer	AF	570	4	..	3	9	105
Charity Hospital of Louisiana									
Louisiana State University Unit [1]	New Orleans	H. T. Simon	ACF	1,224	14	4	12	..	100
Tulane University Unit [1]	New Orleans	J. Wickstrom	ACF	1,435	8	4	12	10	100

Numerical and other references will be found on page 363.

15. ORTHOPEDIC SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered[5]	Total Residencies Offered[5]	Program Identification	Beginning Stipend (Month)
Ochsner Foundation Hospital[1]	New Orleans	G. A. Caldwell	AF	229	..	2	4	56	200
Touro Infirmary[1]	New Orleans	R. H. Alldredge	ACF	1,020	3	1	3	10, 56	100
Confederate Memorial Medical Center[1]	Shreveport, La.	C. R. Reed	ACF	1,056	6	2	6	..	125
Baltimore City Hospitals[1-3]	Baltimore	A. F. Voshell	AF	904	8	..	1	58	75
Children's Hospital School[1]	Baltimore	G. E. Bennett	C	618	2	..	..	46, 57	...
James Lawrence Kernan Hospital for Crippled Children[1-3]	Baltimore	A. F. Voshell	C	490	..	..	2	58	250
Johns Hopkins Hospital[1-3]	Baltimore	R. A. Robinson	AF	722	8	..	6	57	20
Boston City Hospital[1-3]	Boston	R. F. Sullivan	AF	2,863	2	..	7	13, 66	132
Children's Medical Center[1-3]	Boston	W. T. Green	C	857	..	6	11	11	60
Lahey Clinic[1-3]	Boston	G. E. Haggart	A	551	1	4	12	66	175
Massachusetts General Hospital[1-3]	Boston	J. S. Barr	ACF	1,452	4	5	6	11	...
Peter Bent Brigham Hospital[1-3]	Boston	W. T. Green	AF	.....	..	..	1	11	42
Massachusetts Hospital School[1]	Canton, Mass.	P. L. Norton	CF	145	..	..	2	13, 66	...
Shriners Hospital for Crippled Children[3]	Springfield, Mass.	G. de N. Hough, Jr.	C	329	..	1	2	66	50
Worcester City Hospital[3]	Worcester, Mass.	J. B. Kelley	AF	988	10	1	2	..	215
Children's Hospital[1-3]	Detroit	F. J. Fischer	C	308	..	..	2	12	200
Harper Hospital[1-3]	Detroit	C. W. Peabody	A	883	2	2	2	12	225
Henry Ford Hospital[1-3]	Detroit	C. L. Mitchell	ACF	1,256	6	4	10	..	225
Receiving Hospital[1-3]	Detroit	A. G. Goetz	F	790	7	..	2	12	270
Blodgett Memorial Hospital[1-3]	Grand Rapids, Mich.	C. H. Frantz	ACF	418	2	1	3	..	225
Borgess Hospital[1-3]	Kalamazoo, Mich.	R. DeLong	ACF	562	7	1	8	..	225
Fairview Hospital[1-3]	Minneapolis	....	ACF	.....	..	..	..	61	...
Shriners Hospital for Crippled Children[1-3]	Minneapolis	J. D. B. Galloway	C	221	..	2	2	16	100
University of Minnesota Hospitals[1-3]	Minneapolis	W. H. Cole	A	207	2	1	3	16	162
Mayo Foundation[1-3]	Rochester, Minn.	R. K. Ghormley	ACF	5,500	8	9	25	..	150
Gillette State Hospital for Crippled Children[1-3]	St. Paul	C. C. Chatterton	C	783	4	4	4	16	169
Mississippi Baptist Hospital[1]	Jackson, Miss.	T. H. Blake	ACF	1,305	8	1	3	..	150
Children's Mercy Hospital[1-3]	Kansas City, Mo.	C. L. Francisco	C	214	..	1	1	18	125
Kansas City General Hospital No. 1[1-3]	Kansas City, Mo.	F. G. Pipkin	AF	571	11	..	2	18	150
St. Luke's Hospital[1-3]	Kansas City, Mo.	R. L. Diveley	ACF	1,073	5	1	8	18	175
Barnes Hospital[1-3]	St. Louis	J. A. Key	ACF	1,069	5	1	5	..	50
St. Mary's Group of Hospitals[1-3]	St. Louis	R. M. O'Brien	ACF	776	6	2	6	..	100
University of Nebraska Hospital[1-3]	Omaha	W. R. Hamsa	ACF	.....	..	1	1	..	...
Monmouth Memorial Hospital[1-3]	Long Branch, N. J.	B. M. Halbstein	ACF	734	3	1	3	..	200
Hospital for Crippled Children[1-3]	Newark, N. J.	T. Nicola—H. Kessler	AC	.....	1	2	4	..	150
Hospital Center at Orange									
New Jersey Orthopedic Hospital[1-3]	Orange, N. J.	H. T. Hansen	ACF	686	..	2	2	..	150
Orange Memorial Hospital[1-3]	Orange, N. J.	H. Briggs	.....	448	..	1	1	..	150
Carrie Tingley Hospital for Crippled Children[1]	Truth or Consequences, N. Mex.	W. L. Minear	C	479	2	..	2	7	150
Albany Hospital[1-3]	Albany, N. Y.	C. Campbell	AF	692	2	1	3	42	...
House of St. Giles the Cripple[1-3]	Brooklyn	M. Cleveland—D. Bosworth	C	175	..	1	8	26, 41	100
Kings County Hospital[1-3]									
County Division	Brooklyn	C. C. Vitale	ACF	287	..	1	3	..	104
University Service	Brooklyn	R. F. Warren	ACF	306	..	1	8	..	...
St. Charles Hospital[1-3]	Brooklyn	H. C. Fett	C	304	..	3	3	39, 52	125
Buffalo General Hospital[1-3]	Buffalo	F. N. Potts	AF	939	5	3	4	24	175
Children's Hospital[1-3]	Buffalo	F. N. Potts	C	440	1	..	3	24	125
Meadowbrook Hospital[1-3]	Hempstead, N. Y.	O. C. Hudson	F	1,966	16	2	4	38	225
Nassau Hospital[1-3]	Mineola, N. Y.	O. C. Hudson	AF	1,953	..	3	3	38	170
Bellevue Medical Center									
Division IV—New York University Post-Graduate Medical School[1-3]	New York City	W. A. L. Thompson	ACF	748	..	4	12	61	71
Hospital for Joint Diseases[1-3]	New York City	J. E. Milgram	ACF	2,664	6	6	19	..	80
Hospital for Special Surgery[1-3]	New York City	P. D. Wilson	ACF	1,592	6	4	12	22	160
Metropolitan Hospital[1-3]	New York City	M. J. Wilson	AF	613	6	2	4	67	104
Mount Sinai Hospital[1-3]	New York City	R. K. Lippmann	ACF	1,095	2	2	4	..	50
New York Polyclinic Medical School and Hospital[1-3]	New York City	D. M. Bosworth	F	237	2	..	1	26	...
Presbyterian Hospital[1]	New York City	A. D. Smith	ACF	2,612	1	6	18	..	208
St. Luke's Hospital[1-3]	New York City	D. M. Bosworth	ACF	830	6	1	3	41	75
St. Charles Hospital	Port Jefferson, N. Y.	F. S. Child	C	504	..	..	..	38, 43	...
Rochester General Hospital[1-3]	Rochester, N. Y.	H. B. Crawford	A	648	2	..	1	31	100
Strong Memorial-Rochester Municipal Hospital[1-3]	Rochester, N. Y.	R. P. Schwartz	ACF	20,589	..	3	7	31	...
Ellis Hospital[1-3]	Schenectady, N. Y.	W. E. Gazeley	AC	789	1	1	3	42	150
St. Vincent's Hospital[1-3]	Staten Island, N. Y.	D. M. Bosworth	F	554	..	1	1	26	150
Sea View H		D. M. Bosworth	A	189	..	4	4	26	157
Rehabilitat		J. C. McCauley, Jr.	C	613	1	4	4	14, 61	225
Charlotte		A. R. Berkeley, Jr.	AF	1,430	2	1	2	48	250
Duke Univ		L. D. Baker	ACF	745	1	6	17	19	250
North Car		W. M. Roberts	C	422	1	2	2	..	...
Children's		F. B. Roberts	C	808	..	2	6	15	250
City Hospital[1-3]	Akron, Ohio	A. E. Davis	ACF	502	..	1	3	15	250
Children's Hospital[1]	Cincinnati	J. A. Freiberg	C	362	..	..	..	17	...
Cincinnati General Hospital[1-3]	Cincinnati	J. A. Freiberg	AF	183	3	2	6	17	50
Jewish Hospital[1-3]	Cincinnati	J. A. Freiberg	A	773	6	..	1	17	105
Cleveland Clinic Hospital[1-3]	*Cleveland*	*J. A. Dickson*	ACF	*810*	3	2	8	3	175
University Hospitals[1-3]	Cleveland	C. H. Herndon	ACF	1,214	1	..	6	..	125
Children's Hospital[1]	Columbus, Ohio	H. B. Lacey	C	514	..	..	3	25	200
Mount Carmel Hospital[1]	Columbus, Ohio	H. B. Lacey	AF	1,285	7	1	1	25	...
Ohio State University Hospitals									
University Hospital[1-3]	Columbus, Ohio	J. D. Wilson	AF	.....	..	..	7	25	175
White Cross Hospital[1-3]	Columbus, Ohio	J. Q. Brown	AF	1,022	1	1	3	25	275
Elyria Memorial Hospital[1-3]	Elyria, Ohio	C. N. Heyman	C	597	4	..	1	27	270
St. Vincent's Hospital[1-3]	Toledo, Ohio	A. L. Bershon	ACF	1,341	4	1	3	..	225
Bone and Joint Hospital[3]	Oklahoma City	E. D. McBride	AF	1,865	..	1	4	53	200
St. Anthony Hospital	Oklahoma City	W. K. West	A	1,513	1	1	1	53	150
University Hospitals[1-3]	Oklahoma City	D. H. O'Donoghue	ACF	1,316	1	2	8	53	85
Emanuel Hospital[1-3]	Portland, Ore.	E. G. Chuinard	AF	2,017	8	1	2	28	175
Shriners Hospital for Crippled Children[1-3]	Portland, Ore.	L. S. Lucas	C	356	..	..	1	28	100
University of Oregon Medical School Hospitals and Clinics[1-3]	Portland, Ore.	L. S. Lucas	AF	580	6	2	8	28	85
George F. Geisinger Memorial Hospital[1-3]	Danville, Pa.	L. F. Bush	AF	671	3	1	3	6	125
State Hospital for Crippled Children[1]	Elizabethtown, Pa.	T. Outland	C	309	..	3	3	21	253
Hamot Hospital[1-3]	Erie, Pa.	C. W. Fortune	ACF	1,537	9	1	3	..	200
Children's Hospital[1-3]	Philadelphia	J. T. Nicholson	C	233	1	2	2	23	75
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	J. T. Nicholson	A	281	..	1	1	23	75
Hospital of the University of Pennsylvania[1-3]	Philadelphia	P. Colonna	ACF	775	2	2	7	20	...
Jefferson Medical College Hospital[1-3]	Philadelphia	A. F. De Palma	AF	761	4	2	8	21	100
Pennsylvania Hospital[1-3]	Philadelphia	J. T. Nicholson	F	207	..	1	1	23	20
Philadelphia General Hospital[1-3]	Philadelphia	I. Stein	ACF	701	9	1	4	23	113

Numerical and other references will be found on page 363.

15. ORTHOPEDIC SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Program Identification	Beginning Stipend (Month)
Shriners Hospital for Crippled Children[1-3]	Philadelphia	J. R. Moore	C	271	..	1	4	29	75
Temple University Hospital[1-3]	Philadelphia	J. R. Moore	AF	1,104	1	1	3	29	...
Allegheny General Hospital[1]	Pittsburgh	P. B. Steele—J. A. Heberling	ACF	1,671	6	2	2	30	200
Children's Hospital[1-3]	Pittsburgh	J. Donaldson—A. Ferguson, Jr.	C	576	..	3	5	6,30	125
Presbyterian Hospital[1-3]	Pittsburgh	J. S. Donaldson	AF	477	2	..	1	30	125
St. Francis General Hospital and Rehabilitation Institute[1-3]	Pittsburgh	C. C. Yount	A	1,999	..	..	1	30	250
Robert Packer Hospital[1-3]	Sayre, Pa.	D. Baker	ACF	537	2	1	3	..	150
Rhode Island Hospital[1-3]	Providence, R. I.	K. G. Burton	ACF	1,622	9	1	4	..	100
Roper Hospital[1-3]	Charleston, S. C.	J. A. Siegling	ACF	1,340	14	1	3	45	...
Columbia Hospital[1-3]	Columbia, S. C.	W. A. Boyd	ACF	1,667	2	1	3	..	175
Greenville General Hospital[1-3]	Greenville, S. C.	F. H. Stelling	AF	832	4	..	3	19	100
Shriners Hospital for Crippled Children[1-3]	Greenville, S. C.	F. H. Stelling	C	374	..	2	3	19, 48	100
Baroness Erlanger Hospital[1-3]	Chattanooga, Tenn.	J. J. Killiffer	ACF	610	1	2	3	..	150
Campbell Clinic Hospital[3]	Memphis, Tenn.	J. S. Speed	ACF	1,981	1	4	12	..	50
Vanderbilt University Hospital[1-3]	Nashville, Tenn.	E. M. Regen	ACF	953	2	1	3	..	50
Baylor University Hospital[1-3]	Dallas, Texas	F. L. Butte	A	2,138	3	2	6	32	125
Parkland Memorial Hospital[1-3]	Dallas, Texas	P. M. Girard	F	692	5	..	..	32	...
Texas Scottish Rite Hospital for Crippled Children[1-3]	Dallas, Texas	B. Carrell	C	636	..	1	3	32, 47	100
Hermann Hospital[1]	Houston, Texas	E. T. Smith	ACF	1,470	5	1	5	..	100
Baylor University College of Medicine Affiliated Hospitals									
Jefferson Davis Hospital[1-3]	Houston, Texas	F. A. Bloom	ACF	819	5	1	3	49	75
Veterans Admin. Hospital[1-3]	Houston, Texas	B. F. Boylston	.....	791	7	1	5	49	...
Salt Lake County General Hospital[1-3]	Salt Lake City	P. A. Pemberton	F	135	..	1	3	34	125
Shriners Hospital for Crippled Children[1-3]	Salt Lake City	P. A. Pemberton	C	233	2	1	1	34	...
University of Virginia Hospital[1-3]	Charlottesville, Va.	J. H. Allan	ACF	867	1	..	6	14	50
Crippled Children's Hospital[1-3]	Richmond, Va.	H. P. Mauck	C	380	..	..	1	35	200
Medical College of Virginia—Hospital Division[1-3]	Richmond, Va.	H. P. Mauck	AF	1,324	10	3	7	35	75
Children's Orthopedic Hospital[1-3]	Seattle	J. F. Le Cocq	C	783	1	..	1	36	160
King County Hospital Unit No. 1 (Harborview)[1]	Seattle	R. D. Ray	AF	847	28	1	2	36	110
Providence Hospital[1]	Seattle	B. E. McConville	A	3,467	..	1	1	36	200
Shriners Hospital for Crippled Children[1]	Spokane, Wash.	N. R. Brown	C	253	1	..	1	54	...
University Hospitals[1]	Madison, Wis.	R. E. Burns	ACF	1,353	3	3	7	..	50
Columbia Hospital[1-3]	Milwaukee	A. C. Schmidt	AF	609	6	1	3	37	195
Milwaukee Children's Hospital[1]	Milwaukee	W. P. Blount	C	419	..	..	..	37, 40	150
Shriners Hospital for Crippled Children[1]	Honolulu, T. H.	J. W. White	C	175	..	1	1	50	100

The following services have been approved by the Council and the American Board of Orthopedic Surgery, through the Residency Review Committee for Orthopedic Surgery, as offering acceptable training in adult orthopedics and fractures. Training in the basic sciences is given as an integral part of these services or as a separate course. Services collaborating in an integral plan of training are designated by a program number, a list of which is found on pages 318-319.

Residents completing their training in these hospitals are eligible for limited certification by the American Board of Orthopedic Surgery, not to include children's orthopedic surgery.

Hospitals, 41; Assistant Residencies and Residencies, 106

FEDERAL

UNITED STATES ARMY

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Program Identification	Beginning Stipend (Month)
Letterman Army Hospital[1]	San Francisco	J. D. Blair	AF	1,219	..	3	9	..	...
Fitzsimons Army Hospital[1]	Denver	L. W. Taylor	AF	1,181	3	..	..	..	...

UNITED STATES AIR FORCE

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Program Identification	Beginning Stipend (Month)
U. S. Air Force Hospital[3]	San Antonio, Texas	H. E. Block	AF	923	3	2	4	..	...

UNITED STATES NAVY

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Program Identification	Beginning Stipend (Month)
U. S. Naval Hospital[1]	Oakland, Calif.	T. M. Foley, Jr.	AF	1,427	..	..	..	..	...
U. S. Naval Hospital[1-3]	Bethesda, Md.	J. H. Cheffey	AF	1,384	2	1	2	..	...
U. S. Naval Hospital[1]	Chelsea, Mass.	W. C. Cantrell	AF	635	1	1	2	..	...
U. S. Naval Hospital[1]	St. Albans, N. Y.	H. A. Markowitz	AF	914	2	..	..	..	...
U. S. Naval Hospital[1]	Philadelphia	A. B. Dickson	AF	1,130	1	..	..	..	...
U. S. Naval Hospital[1-3]	Portsmouth, Va.	C. A. Stevenson	AF	2,177	..	1	2	..	...

VETERANS ADMINISTRATION

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Program Identification	Beginning Stipend (Month)
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	R. H. Hall	AF	490	4	1	3	..	...
Veterans Admin. Hospital[1-3]	Los Angeles		AF	1,295	15	3	8	..	...
Veterans Admin. Hospital[1-3]	Denver	M. E. Gibbens	AF	905	..	1	2	..	...
Veterans Admin. Hospital[1-3]	St. Louis	O. P. Hampton, Jr.	AF	162	..	1	3	..	...
Veterans Admin. Hospital[1-3]	Lincoln, Neb.	J. E. M. Thomson	AF	381	..	1	3	..	...
Veterans Admin. Hospital[1-3]	Portland, Ore.	H. C. Blair	AF	645	3	1	3	..	...
Veterans Admin. Hospital	Philadelphia	E. O. Geckler	AF	755	1	2	4	..	...
Veterans Admin. Hospital[1-3]	McKinney, Texas	V. M. Bryant	AF	755	1	2	4	..	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Program Identification	Beginning Stipend (Month)
Lloyd Noland Hospital[1]	Fairfield, Ala.	C. L. Yelton	AF	875	1	1	3	..	225
White Memorial Hospital[1-3]	Los Angeles	T. G. Reynolds	AF	408	2	1	3	..	140
San Diego County General Hospital[1-3]	San Diego, Calif.	F. E. West	AF	398	1	1	2	..	150
St. Joseph's Hospital[1-3]	San Francisco	R. Soto-Hall	AF	871	3	1	3	..	150
St. Mary's Hospital[1-3]	San Francisco	J. J. Loutzenheiser	AF	1,480	..	1	2	..	150
St. Luke's Hospital[1-3]	Chicago	C. N. Lambert	AF	564	5	1	2	..	50
Methodist Hospital[1-3]	Indianapolis	G. Batman	AF	1,649	3	1	2	..	273
Massachusetts Memorial Hospitals[1-3]	Boston	K. Christophe	A	248	1	..	1	62	50
Lynn Hospital[1-3]	Lynn, Mass.	D. M. Killoran	F	1,047	1	1	1	62	150
Worcester City Hospital[3]	Worcester, Mass.	J. B. Kelley	AF	988	10	1	2	..	215
Jewish Hospital[1-3]	Brooklyn	S. A. Bernstein	AF	945	3	1	2	..	...
Methodist Hospital[1-3]	Brooklyn	H. P. Lange	AF	527	2	1	1	..	175
Edward J. Meyer Memorial Hospital[1]	Buffalo	J. P. Cole	AF	137	2	1	2	..	179
Queens Hospital Center[1-3]	Jamaica, N. Y.	F. C. Courten	AF	155	3	1	3	..	105
North Carolina Memorial Hospital[1]	Chapel Hill, N. C.	R. B. Raney	AF	308	1	1	2	..	145
North Carolina Baptist Hospitals[1-3]	Winston-Salem, N. C.	F. Forsyth	AF	504	2	2	4	..	125
Mount Sinai Hospital[1]	Cleveland	A. Miller	AF	968	4	1	2	..	215
St. Luke's Hospital[1]	Cleveland	W. H. McGaw	AF	1,026	2	1	4	..	120
Youngstown		W. D. McElroy	AF	900	6	1	2	..	175
Hahnemann "		E. O. Geckeler	AF	933	..	2	5	..	75
St. Mary's M		R. Brashear	A	1,424	..	1	3	..	300
University of Texas Medical Branch Hospitals[1-3]	Galveston, Texas	G. W. N. Eggers	AF	628	3	1	3	..	...
St. Joseph's Hospital[1]	Houston, Texas	F. F. Parrish	AF	70	1	1	2	..	225
Scott and White Memorial Hospitals[1-3]	Temple, Texas	R. A. Murray	AF	1,616	1	1	2	..	250

Numerical and other references will be found on page 363.

15. ORTHOPEDIC SURGERY—Continued

The following services are approved by the Council and the American Board of Orthopedic Surgery, through the Residency Review Committee for Orthopedic Surgery, as offering acceptable training in one or more but not all categories of orthopedic surgery. Hospitals included in this list are urged to develop a full three year program, either independently or in collaboration with other institutions in order to assure applicants for appointment of an opportunity for completing their training with progressive graded responsibility.

Hospitals, 24; Assistant Residencies and Residencies, 39

FEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Program Identification	Beginning Stipend (Month)
UNITED STATES NAVY									
U. S. Naval Hospital[1]	San Diego, Calif.	W. R. Miller	AF	2,381	3	..	..	..	...
NONFEDERAL									
Children's Hospital[1-3]	Los Angeles	J. B. Wilson	C	608	3	..	2	..	150
Shriners Hospital for Crippled Children	Los Angeles	G. W. Westin	C	291	..	2	2	..	150
Children's Hospital of the East Bay[1-3]	Oakland, Calif.	E. G. Ewer	C	470	1	..	1	..	200
Highland-Alameda County Hospital[1-3]	Oakland, Calif.	L. Barnard	AF	728	6	1	2	..	195
Sonoma County Hospital[1]	Santa Rosa, Calif.	R. C. Bechtol	A	266	7	1	1	..	425
Hope Haven Hospital[1-3]	Jacksonville, Fla.	F. L. Fort	C	263	..	..	1	..	135
Jackson Memorial Hospital[1-3]	Miami, Fla.	E. W. Cullipher	ACF	1,740	5	2	6	..	75
Scottish Rite Hospital for Crippled Children	Decatur, Ga.	J. H. Kite	C	313	..	1	1	..	200
Emory University Hospital[1]	Emory University, Ga.	R. P. Kelly	C	593	1	..	2	..	215
Alexian Brothers Hospital[3]	Chicago	L. Miller	F	1,809	9	1	1	..	125
Illinois Masonic Hospital[1-3]	Chicago	W. R. Fischer	AF	.....	..	1	1	..	115
Michael Reese Hospital[1-3]	Chicago	S. Sideman	AC	1,001	1	1	3	..	50
Iowa Methodist Hospital[1-3]	Des Moines, Iowa	D. N. Gibson	AF	432	1	1	2	..	150
Mercy Hospital[1-3]	Iowa City	A. Steindler	A	653	..	1	2	..	150
St. Francis Hospital[1-3]	Wichita, Kan.	J. F. Lance	A	1,557	6	2	3	..	275
Shriners Hospital for Crippled Children	Shreveport, La.	G. D. Caldwell	C	266	..	..	..	..	100
St. Louis City Hospital[1-3]	St. Louis	J. O. Lottes— I. Horwitz	F	881	2	1	3	..	190
Shriners Hospital for Crippled Children	St. Louis	C. H. Crego	C	463	..	..	2	..	...
Nebraska Orthopedic Hospital[1]	Lincoln, Neb.	H. W. Orr	C	680	4	1	1	..	150
Orthopaedic Hospital and Dispensary[1-3]	Trenton, N. J.	R. B. Ernest	A	659	..	1	1	..	200
Long Island College Hospital[1-3]	Brooklyn	H. C. Fett, Sr.	A	722	7	2	3	39	75
Reading Hospital[1-3]	Reading, Pa.	E. J. Morrissey	AF	781	6	1	1	..	225
Primary Children's Hospital[1]	Salt Lake City	P. R. Milligan	C	208	..	1	1	..	200

ORTHOPEDIC SURGERY—PROGRAM IDENTIFICATION

Program Number	Hospital	Location
1.	Arkansas Children's Home and Hospital	Little Rock, Ark.
	Veterans Admin. Hospital	Memphis, Tenn.
2.	Samuel Merritt Hospital	Oakland, Calif.
	Veterans Admin. Hospital	San Francisco
	Children's Hospital	San Francisco
	Franklin Hospital	San Francisco
	San Francisco Hospital	San Francisco
	Shriners Hospital for Crippled Children	San Francisco
	University of California Hospital	San Francisco
3.	Veterans Admin. Hospital	San Francisco
	San Francisco Hospital	San Francisco
	Stanford University Hospital	San Francisco
4.	Children's Hospital	Denver
	Colorado General Hospital	Denver
	Denver General Hospital	Denver
5.	Hartford Hospital	Hartford, Conn.
	Grace-New Haven Community Hospital	New Haven, Conn.
	Newington Home and Hospital for Crippled Children	Newington, Conn.
6.	George F. Geisinger Memorial Hospital	Danville, Pa.
	Children's Hospital	Pittsburgh
7.	American Legion Hospital for Crippled Children	St. Petersburg, Fla.
	Chicago Wesley Memorial Hospital	Chicago
	Passavant Memorial Hospital	Chicago
	Veterans Admin. Research Hospital	Chicago
	Evanston Hospital	Evanston, Ill.
	St. Francis Hospital	Evanston, Ill.
	Carrie Tingley Hospital for Crippled Children	Truth or Consequences, N. Mex.
	Primary Children's Hospital	Salt Lake City
8.	Veterans Admin. Hospital	Indianapolis
	Indianapolis	
	Indiana Univ	
	St. Vincent's	
9.	Veterans Admin. Hospital	Louisville, Ky.
	Kosair Crippled Children Hospital	Louisville, Ky.
	Louisville General Hospital	Louisville, Ky.
10.	Veterans Admin. Hospital	New Orleans
	Charity Hospital of Louisiana Tulane University Unit	New Orleans
	Touro Infirmary	New Orleans
11.	Children's Hospital	Boston
	Massachusetts General Hospital	Boston
12.	Children's Hospital	Detroit
	Harper Hospital	Detroit
	Receiving Hospital	Detroit
13.	Veterans Admin. Hospital	Boston
	Boston City Hospital	Boston
	Massachusetts Hospital School	Canton, Mass.
14.	Rehabilitation Hospital	West Haverstraw, N. Y.
	University of Virginia Hospital	Charlottesville, Va.
15.	Children's Hospital	Akron, Ohio
	City Hospital	Akron, Ohio
16.	Veterans Admin. Hospital	Minneapolis
	Shriners Hospital for Crippled Children	Minneapolis
	University of Minnesota Hospitals	Minneapolis
	Gillette State Hospital for Crippled	St Paul
17.	Children's Hospital	
	Cincinnati General Hospital	
	Jewish Hospital	
18.	Veterans Admin.	
	Children's Mercy	
	Kansas City Gene	
	St. Luke's Hospital	Kansas City, Mo.
	Veterans Admin. Hospital	Kansas City, Mo.
19.	Alfred I. du Pont Institute of the Nemours Foundation	Wilmington, Del.
	Duke Hospital	Durham, N. C.
	Veterans Admin. Hospital	Durham, N. C.
	North Carolina Orthopaedic Hospital	Gastonia, N. C.
	Greenville General Hospital	Greenville, S. C.
	Shriners Hospital for Crippled Children	Greenville, S. C.
20.	Alfred I. du Pont Institute of the Nemours Foundation	Wilmington, Del.
	Hospital of the University of Pennsylvania	Philadelphia
21.	State Hospital for Crippled Children	Elizabethtown, Pa.
	Jefferson Medical College Hospital	Philadelphia
22.	Veterans Admin. Hospital	New York City
	Hospital for Special Surgery	New York City
23.	Children's Hospital	
	Graduate Hospital of the University of P	
	Pennsylvania Hospital	
	Philadelphia General Hospital	
24.	Veterans Admin. Hospital	
	Buffalo General Hospital	Buffalo
	Children's Hospital	Buffalo
25.	Children's Hospital	Columbus, Ohio
	Mount Carmel Hospital	Columbus, Ohio
	Ohio State University Hospitals University Hospital	Columbus, Ohio
	White Cross Hospital	Columbus, Ohio
26.	House of St. Giles the Cripple	Brooklyn
	New York Polyclinic Medical School and Hospital	New York City
	St. Vincent's Hospital	Staten Island, N. Y.
	Seaview Hospital	Staten Island, N. Y.
27.	Veterans Admin. Hospital	Cleveland
	Elyria Memorial Hospital	Elyria, Ohio
28.	Emanuel Hospital	Portland, Ore.
	Shriners Hospital for Crippled Children	Portland, Ore.
	University of Oregon Medical School Hospitals and Cl	
29.	Shriners Hospital fc	
	Temple University	
30.	Allegheny General	
	Children's Hospital	
	Presbyterian Hospital	Pittsburgh
	St. Francis Hospital	Pittsburgh

Numerical and other references will be found on page 363.

Program Number	Hospital	Location
31.	Rochester General Hospital	Rochester, N. Y.
	Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.
32.	Baylor University Hospital	Dallas, Texas
	Parkland Hospital	Dallas, Texas
	Texas Scottish Rite Hospital for Crippled Children	Dallas, Texas
34.	Veterans Admin. Hospital	Salt Lake City
	Salt Lake County	Salt Lake City
	Shriners Hospital	Salt Lake City
35.	Veterans Admin. Hospital	Richmond, Va.
	Crippled Children's Hospital	Richmond, Va.
	Medical College of Virginia-Hospital Division	Richmond, Va.
36.	Children's Orthopedic Hospital	Seattle
	King County Hospital, Unit No. 1 (Harborview)	Seattle
	Providence Hospital	Seattle
37.	Columbia Hospital	Milwaukee
	Milwaukee Children's Hospital	Milwaukee
38.	Meadowbrook Hospital	Hempstead, N. Y.
	Nassau Hospital	Mineola, N. Y.
	St. Charles Hospital for Crippled Children	Port Jefferson, N. Y.
39.	Long Island College Hospital	Brooklyn
	St. Charles Hospital Orthopedic Clinic	Brooklyn
40.	Veterans Admin. Hospital	Milwaukee
	Milwaukee Children's Hospital	Milwaukee
41.	House of St. Giles the Cripple	Brooklyn
	St. Luke's Hospital	New York City
42.	Albany Hospital	Albany, N. Y.
	Ellis Hospital and Eastern New York *Orthopedic Hospital School*	Schenectady, N. Y.
43.	Hospital of St. Raphael	New Haven, Conn.
	St. Charles Hospital for Crippled Children	Port Jefferson, N. Y.
44.	Veterans Admin. Hospital	Birmingham, Ala.
	Crippled Children's Hospital	Birmingham, Ala.
	University Hospital and Hillman Clinic	Birmingham, Ala.
45.	Veterans Admin. Hospital	Columbia, S. C.
	Roper Hospital	Charleston, S. C.
46.	Veterans Admin. Hospital	Fort Howard, Md.
	Children's Hospital School	Baltimore
47.	Veterans Admin. Hospital	Dallas, Texas
	Texas Scottish Rite Hospital for Crippled Children	Dallas, Texas
48.	Charlotte Memorial Hospital	Charlotte, N. C.
	Shriners Hospital for Crippled Children	Greenville, S. C.
49.	Veterans Admin. Hospital	Houston, Tex.
	Jefferson Davis Hospital	Houston, Tex.
50.	Veterans Admin. Hospital	Hines, Ill.
	Shriners Hospital for Crippled Children	Chicago
	Shriners Hospital for Crippled Children	Honolulu, T. H.
	West Suburban Hospital	Oak Park, Ill.
51.	Bellevue Hospital Center, Division IV—New York University Postgraduate Med. School	New York City
	Rehabilitation Hospital	West Haverstraw, N. Y.
52.	Veterans Admin. Hospital	Brooklyn
	St. Charles Hospital Orthopedic Clinic	Brooklyn
53.	Veterans Admin. Hospital	Oklahoma City
	Bone and Joint Hospital	Oklahoma City
	St. Anthony Hospital	Oklahoma City
	University Hospitals	Oklahoma City
55.	Veterans Admin. Hospital	Des Moines, Iowa
	University Hospitals	Iowa City
56.	Ochsner Foundation Hospital	New Orleans
	Touro Infirmary	New Orleans
57.	Children's Hospital School	Baltimore
	Johns Hopkins Hospital	Baltimore
58.	Baltimore City Hospital	Baltimore
	James Lawrence Kernan Hospital for Crippled Children	Baltimore
59.	Good Samaritan Hospital	Lexington, Ky.
	St. Joseph's Hospital	Lexington, Ky.
61.	Fairview Hospital	Minneapolis
	Minneapolis General Hospital	Minneapolis
	Shriners Hospital for Crippled Children	Minneapolis
	Gillette State Hospital for Crippled Children	St. Paul
62.	Massachusetts Memorial Hospital	Boston
	Lynn Hospital	Lynn, Mass.
	Newington Home and Hospital for Crippled Children	Newington, Conn.
66.	Boston City Hospital	Boston
	Lahey Clinic	Boston
	Massachusetts Hospital School	Canton, Mass.
	Shriners Hospital For Crippled Children	Springfield, Mass.
67.	Hospital for Crippled Children	New York City
	Metropolitan Hospital	New York City

16. OTOLARYNGOLOGY

The following services have been approved by the Council and the American Board of Otolaryngology, through the Residency Review Committee for Otolaryngology, as offering acceptable training in the specialty.

Hospitals, 111; Assistant Residencies and Residencies, 391

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
FEDERAL							
UNITED STATES ARMY							
Letterman Army Hospital[1]	San Francisco	B. G. McKibben	623	13,640	1	3	...
Army Medical Center[1-3]	Washington, D. C.	F. L. Spann	920	5,660	2	6	...
Brooke Army Hospital[1-3]	San Antonio, Texas	R. P. Rea	571	10,740	1	3	...
UNITED STATES NAVY							
U. S. Naval Hospital[1]	Oakland, Calif.	C. D. Riggs	1,035	3,425	..	..	...
U. S. Naval Hospital[1]	San Diego, Calif.	L. E. Wible	1,434	7,850	..	..	...
U. S. Naval Hospital[1-3]	Bethesda, Md.	S. J. Ryan	1,276	5,234	..	2	...
U. S. Naval Hospital[1]	Philadelphia	W. C. Livingood	909	10,637	..	..	...
VETERANS ADMINISTRATION							
Veterans Admin. Hospital[1-3]	Little Rock, Ark.	P. L. Mahoney	281	.....	2	2	...
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	A. Swirsky	279	3,827	1	2	...
Veterans Admin. Hospital[1-3]	Los Angeles	C. S. Mumma	774	3,528	..	2	...
Veterans Admin. Hospital[1]	San Francisco	W. P. Work	305	2,998	1	3	...
Veterans Admin. Hospital[1]	Hines, Ill.	F. L. Lederer	.....	.....	2	4	...
Veterans Admin. Hospital	Kan.	N. E. Lacy	53	180	1	1	...
Veterans Admin. Hospital	Ky.	(See University of Louisville Medical Center)					
Veterans Admin. Hospital[1-3]	Boston (Jamaica Plain)	E. H. Tomb	378	1,740	1	3	...
Veterans Admin. Hospital[1-3]	Minneapolis	H. V. Hanson	210	130	1	2	...
Veterans Admin. Hospital[1-3]	St. Louis	E. H. Lyman	89	1,238	1	3	...
Veterans Admin. Hospital	East Orange, N. J.	....	.....	.....	..	..	...
Veterans Admin. Hospital[1-3]	New York City (Bronx)	D. H. Jones	676	1,444	2	3	...
Veterans Admin. Hospital[1-3]	Cleveland	V. M. Jordan	404	1,054	1	2	...
Veterans Admin. Hospital[1]	Pittsburgh	S. L. Kyler	384	.....	1	3	...
Veterans Admin. Hospital[1-3]	Memphis, Tenn.	T. C. Maguda	622	4	1	2	...
Veterans Admin. Hospital[1-3]	Dallas, Texas	C. D. Winborn	143	1	2	4	...
Veterans Admin. Hospital[1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)					
Veterans Admin. Hospital[1-3]	McKinney, Texas	D. A. Corgill	261	6	1	8	...
Veterans Admin. Hospital[1-3]	Milwaukee (Wood)	G. D. Straus	340	174	1	1	...
NONFEDERAL							
Los Angeles County General Hospital[1]	Los Angeles	A. H. Miller	2,134	24,806	1	6	200
Los Angeles Eye and Ear Hospital[1-3]	Los Angeles	A. H. Miller	1,617	3,634	2	4	...
White Memorial Hospital[1-3]	Los Angeles	L. R. House	938	5,495	1	2	146
Stanford University Hospitals[1-3]	San Francisco	R. C. McNaught	534	6,346	1	3	80
University of California Hospital[1-3]	San Francisco	L. F. Morrison	412	.....	1	8	87
Harbor General Hospital[1-3]	*Torrance, Calif.*	S. Kaplan	.....	2,682	1	2	200
University of Colorado Medical Center Colorado General Hospital[1-3]	Denver	H. L. Hickey	163	3,216	1	2	150

Numerical and other references will be found on page 363.

16. OTOLARYNGOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Denver General Hospital[1-3]	Denver	H. L. Hickey	162	1	..	..	...
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	J. A. Kirchner	722	5,121	1	3	50
Episcopal Eye, Ear and Throat Hospital[3]	Washington, D. C.	D. B. Moffett	4,550	15,220	2	6	150
Tampa Municipal Hospital[1-3]	Tampa, Fla.	J. B. Farrior	730	.....	1	2	125
Grady Memorial Hospital[1-3]	Atlanta, Ga.	W. C. Warren	33	78	1	3	20
Cook County Hospital[1-3]	Chicago	S. J. Pearlman	924	12,123	5	5	...
Illinois Eye and Ear Infirmary[1-3]	Chicago	F. L. Lederer	943	31,339	6	14	110
Northwestern University Medical Center							
Chicago Wesley Memorial Hospital[1-3]	Chicago	G. E. Shambaugh, Jr.	961	.....	1	1	50
University of Chicago Clinics[1-3]	Chicago	J. R. Lindsay	442	8,987	1	3	175
University of Illinois Research and Educational Hospitals[1]	Chicago	F. L. Lederer	392	8,730	1	2	...
Indianapolis General Hospital[1-3]	Indianapolis	D. Brown	647	5,666	1	3	165
Indiana University Medical Center[1]	Indianapolis	M. Manion	434	4,047	1	4	165
University Hospitals[1-3]	Iowa City	D. M. Lierle	2,043	4,610	4	12	118
University of Kansas Medical Center[1-3]	Kansas City, Kan.	G. O. Proud	647	6,147	1	4	125
University of Louisville Medical Center							
Louisville General Hospital[1-3]	Louisville, Ky.	W. C. Wolfe	43	.....	..	1	157
Veterans Admin. Hospital[1-3]	Louisville, Ky.	M. Oppenheim	200	671	1	2	...
Charity Hospital of Louisiana							
Louisiana State University Unit	New Orleans						
Tulane University Unit	New Orleans	....	.....	.....	..	..	...
Eye, Ear, Nose and Throat Hospital	New Orleans	L. W. Alexander	4,181	9,379	5	6	100
Baltimore Eye, Ear, Nose and Throat Charity Hospital[1-3]	Baltimore	T. R. O'Rourk	3,421	10,409	1	3	150
Johns Hopkins Hospital[1-3]	Baltimore	J. E. Bordley	1,040	8,215	..	5	20
Mercy Hospital	Baltimore	T. A. Schwartz	1,291	1,561	1	3	...
University Hospital[1-3]	Baltimore	T. R. O'Rourk	243	224	1	3	50
Boston City Hospital[1-3]	Boston	A. J. Gorney	2,082	13,654	3	6	112
Massachusetts Eye and Ear Infirmary[1-3]	Boston	L. A. Schall	3,255	21,140	3	9	500
University Hospital[1-3]	Ann Arbor, Mich.	A. C. Furstenberg	612	8,291	2	8	145
Harper Hospital[1-3]	Detroit	W. Warren	3,155	1	1	3	225
Henry Ford Hospital[1-3]	Detroit	J. L. Dill	993	16,130	2	2	225
Receiving Hospital[1-3]	Detroit	J. E. Croushore	491	4,732	1	3	270
University of Minnesota Hospitals[1-3]	Minneapolis	L. R. Boies	355	4	2	6	162
Mayo Foundation[1-3]	Rochester, Minn.	H. L. Williams	958	26,922	2	5	150
Kansas City General Hospital No. 1	Kansas City, Mo.	....	.....	.....	..	..	...
Homer G. Phillips Hospital[1-3]	St. Louis	A. J. Cone	185	2	2	6	190
St. Mary's Group of Hospitals[1-3]	St. Louis	B. J. McMahon	510	2,852	1	3	100
Washington University Hospitals							
Barnes Hospital[1-3]	St. Louis	T. E. Walsh	2,888	.....	2	9	50
McMillan Hospital	St. Louis						
Newark Eye and Ear Infirmary[1-3]—Harrison S. Martland Medical Center	Newark, N. J.	E. P. Cardwell	1,891	8	1	1	125
Albany Hospital[1-3]	Albany, N. Y.	B. Volk	592	.....	1	3	...
Brooklyn Eye and Ear Hospital[1-3]	Brooklyn	J. P. Baker	6,119	38,152	2	6	100
Kings County Hospital							
County Division	Brooklyn	E. A. Sunde	.....	.....	1	2	...
University Service[1-3]	Brooklyn	C. Dennis	311	2,555	1	2	104
Long Island College Hospital[1-3]	Brooklyn	C. R. Weeth	938	1,919	1	3	75
Buffalo General Hospital[1-3]	Buffalo	H. E. Bozer	897	1,209	1	3	175
Bellevue Medical Center							
Division IV—New York University Post-Graduate Medical School[1-3]	New York City	J. F. Daly	2,209	15,284	5	12	71
Harlem Eye and Ear Hospital[1-3]	New York City	E. Grabscheid	2,365	23,332	1	3	60
Manhattan Eye, Ear and Throat Hospital[1-3]	New York City	W. B. Allan	7,393	42,458	4	8	50
Mount Sinai Hospital[1-3]	New York City	J. L. Goldman	542	5,056	1	3	50
New York City Hospital[1-3]	New York City	O. C. Risch	221	4,930	1	3	104
New York Eye and Ear Infirmary[1-3]	New York City	J. S. Hanley	3,039	33,571	6	18	50
New York Hospital[1-3]	New York City	J. A. Moore	1,765	11,314	2	4	84
New York Polyclinic Medical School and Hospital[1-3]	New York City	W. W. Morrison	894	6,085	..	..	...
Presbyterian Hospital[1]	New York City	E. P. Fowler, Jr.	1,828	16,629	4	8	208
Roosevelt Hospital[1-3]	New York City	R. C. Grove	663	5,798	1	3	116
St. Luke's Hospital[1-3]	New York City	V. C. McCuaig	832	9,640	1	3	75
Strong Memorial-Rochester Municipal Hospital[1-3]	Rochester, N. Y.	C. A. Heatly	2,903	.....	1	2	...
State University of New York Medical Center[1-3]	Syracuse, N. Y.	A. H. Rubenstein	1,157	2,898	2	2	192
Duke University Hospital[1-3]	Durham, N. C.	W. W. Eagle	557	9,165	..	..	...
McPherson Hospital[1-3]	Durham, N. C.	T. C. Kerns	1,071	15,669	1	3	100
North Carolina Baptist Hospitals[1-3]	Winston-Salem, N. C.	J. A. Harrill	416	1,835	1	3	125
Cincinnati General Hospital[1-3]	Cincinnati	H. A. Goodyear	528	4,282	2	6	75
Cleveland Clinic Hospital[1-3]	Cleveland	H. E. Harris	797	15,637	2	6	175
St. Luke's Hospital[1]	Cleveland	T. W. Thoburn	3,037	2,367	1	3	120
Ohio State University Hospitals							
University Hospital[1-3]	Columbus, Ohio	E. W. Harris	321	2,629	..	6	...
University Hospitals[1-3]	Oklahoma City	O. A. Watson	171	1,353	1	1	85
University of Oregon Medical School Hospitals and Clinics[1-3]	Portland, Ore.	G. L. Boyden	488	3,367	1	3	...
George F. Geisinger Memorial Hospital[1-3]	Danville, Pa.	F. W. Davison	995	10,042	1	3	125
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	L. E. Silcox	1,415	2,085	2	4	100
Hospital of the University of Pennsylvania[1-3]	Philadelphia	H. Schenck	1,373	5,573	3	8	...
Jefferson Medical College Hospital[1-3]	Philadelphia	F. Harbert	1,768	7,305	..	2	85
Temple University Hospital[1-3]	Philadelphia	M. S. Ersner	1,472	2,177	1	1	...
Mercy Hospital[1-3]	Pittsburgh	J. A. Perrone	1,678	2,351	1	3	175
Pittsburgh Medical Center							
Eye and Ear Hospital[1-3]	Pittsburgh	T. B. McCollough	1,799	4,529	1	4	125
Rhode Island Hospital[1-3]	Providence, R. I.	R. W. Pearson	1,554	.....	1	8	100
Roper Hospital	Charleston, S. C.	R. M. Hope	201	1,019	1	3	83.33
John Gaston Hospital[1-3]	Memphis, Tenn.	S. Sanders	290	.....	1	2	35
University of Texas Medical Branch Hospitals[1-3]	Galveston, Texas	J. Robison	301	8,891	2	4	...
Baylor University College of Medicine Affiliated Hospitals							
Jefferson Davis Hospital[1-3]	Houston, Texas	H. H. Harris	245	8,361	1	2	...
Veterans Admin. Hospital[1-3]	Houston, Texas	H. H. Harris	309	.....	1	3	...
University of Virginia Hospital[1-3]	Charlottesville, Va.	G. S. Fitzhugh	1,141	5,756	1	3	50
Medical College of Virginia-Hospital Division[1-3]	Richmond, Va.	P. N. Pastore	936	4,023	2	4	50
University Hospitals[1]	Madison, Wis.	C. Taborsky	531	.....	1	2	50

Numerical and other references will be found on page 363.

16. OTOLARYNGOLOGY—Continued

The following hospitals approved by the Council and the American Board of Otolaryngology, through the Residency Committee for Otolaryngology, offer training in otolaryngology of less than three years' duration, which is integrated with or contributory to a fully approved program.

Hospitals, 10; Assistant Residencies and Residencies, 13

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
FEDERAL							
Veterans Admin. Research Hospital	Chicago	J. Waller	22	.....	..	..	...
Veterans Admin. Hospital	Portland, Ore.	G. L. Boyden	167	616	..	1	...
NONFEDERAL							
[illegible]	San Francisco	R. C. Martin	883	1,082	1	1	125
[illegible]	San Francisco						
[illegible]ice		S. Von Christierson	154	.....	..	1	175
[illegible] Service		L. F. Morrison	185	.....	1	1	175
District of Columbia General Hospital	Washington, D. C.	V. Alfaro-O. Houston	280	2,073	1	2	143
Minneapolis General Hospital	Minneapolis	R. E. Priest	207	2,189	..	1	182
Ancker Hospital	St. Paul	G. Strate	210	1,998	1	1	190
St. Louis Children's Hospital	St. Louis	.....	...	.....	..	..	...
St. Louis City Hospital	St. Louis	J. West	202	4,057	2	8	190
Philadelphia General Hospital	Philadelphia	G. L. Whelan	186	.....	2	2	118

17. PATHOLOGY

The following services have been approved by the Council and the American Board of Pathology. Services which have been evaluated on the basis of training in the two categories, pathologic anatomy and clinical pathology, are designated as follows: a—pathologic anatomy only; c—clinical pathology only; p—pathologic anatomy and clinical pathology. Training in hospitals which are not so designated in this list will be evaluated by the Board on an individual basis at the time of application for certification.

Hospitals, 489; Assistant Residencies and Residencies, 1,855

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL										
UNITED STATES ARMY										
Letterman Army Hospital[1]	San Francisco	M. M. Bayliss	313	6,694	6,690	479,818	1	6	4[p]	...
Fitzsimons Army Hospital[1]	Denver	H. A. Van Auken	232	3,973	3,973	522,161	..	..	4[p]	...
Armed Forces Institute of Pathology[1-3]	Washington, D. C.	H. G. Grady	20,222	35,238	35,238	......	..	20	1[a]	...
Army Medical Center[1-3]	Washington, D. C.	K. F. Ernst-H. Sprinz	238	8,115	5,822	919,962	2	8	4[p]	...
Brooke Army Hospital[1-3]	San Antonio, Texas	C. J. Lind, Jr.	288	6,451	6,451	727,446	2	8	4[p]	...
UNITED STATES NAVY										
U. S. Naval Hospital[1]	Oakland, Calif.	H. V. O'Connell	218	6,010	5,919	132,835	..	..	4[p]	...
U. S. Naval Hospital[1]	San Diego, Calif.	J. S. Shaver	370	8,246	8,246	865,425	..	..	4[a]	...
U. S. Naval Hospital[1-3]	Bethesda, Md.	V. E. Martens	204	7,492	7,492	16,837	..	3	4[p]	...
U. S. Naval Hospital[1]	St. Albans, N. Y.	S. S Sarkisian	143	8,124	8,124	215,699	..	..	3[p]	...
U. S. Naval Hospital[1]	Philadelphia	J. D. Langston	130	18,592	18,592	212,531	..	..	4[p]	...
UNITED STATES PUBLIC HEALTH SERVICE										
U. S. Public Health Service Hospital[1-3]	New Orleans	L. L. Swan	118	3,568	3,237	146,148	1	4	1[p]	...
U. S. Public Health Service Hospital[1]	Baltimore	W. Monroe	93	3,796	3,796	151,365	1	4	4[p]	...
National Institutes of Health-Clinical Center[1-3]	Bethesda, Md.	H. Stewart	40	1,320	1,320	53,411	1	1	3[c]	...
U. S. Public Health Service Hospital[1-3]	Staten Island, N. Y.	T. N. Warren	141	4,393	4,020	233,438	1	4	4[p]	...
U. S. Public Health Service Hospital	Seattle	T. L. Perrin	168	3,747	3,538	105,707	1	2	2[p]	...
VETERANS ADMINISTRATION										
Veterans Admin. Hospital[1-3]	Birmingham, Ala.	B. M. Hathaway	127	1,325	1,325	139,643	1	2	3[p]	...
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	B. E. Konwaler	441	3.991	3,991	435,735	2	6	4[p]	...
Veterans Admin. Hospital[1-3]	Los Angeles	L. Kaplan	1,081	5,402	5,402	724,699	5	14	4[p]	...
Veterans Admin. Hospital[1]	San Francisco	J. B. Frerichs-T. Feichtmeir	210	2,599	2,599	187,636	1	4	3[p]	...
Veterans Admin. Hospital[1-3]	Denver	E. H. Valentine	238	1,641	1,626	133,771	1	3	3[p]	...
Veterans Admin. Hospital	Newington, Conn.	.....	...	.....	.....	....	..	..	2[p]	...
Veterans Admin. Hospital[1-3]	West Haven, Conn.	R. Yesner	78	1,083	1,005	99,602	1	3	2[p]	...
Veterans Admin. Hospital[1-3]	Washington, D. C.	J. S. Howe	201	1,500	1,500	141,135	1	4	2[p]	...
Veterans Admin. Hospital[1-3]	Coral Gables, Fla.	R. V. Thomson	242	1,875	1,875	101,576	2	5	4[p]	...
Veterans Admin. Hospital[1]	Atlanta, Ga.	J. Mendeloff	143	1,666	1,666	179,875	1	3	4[p]	...
Veterans Admin. Research Hospital[1-3]	Chicago	(See Northwestern University Medical Center)								
Veterans Admin. Hospital[1]	Hines, Ill.	W. L. McNamara	619	14,480	14,480	731,239	2	8	4[p]	...
Veterans Admin. Hospital[1]	Indianapolis	(See Indiana University Medical Center)								
Veterans Admin. Hospital[1]	Des Moines, Iowa	T. E. Corcoran	146	2,426	2,426	145,950	1	4	4[p]	...
Veterans Admin. Hospital[1-3]	Iowa City	K. R. Cross	124	1,701	1,631	113,164	2	6	4[p]	...
Veterans Admin. Hospital[1-3]	Topeka, Kan.	R. L. Graham	89	461	454	91,846	1	1	1[p]	...
Veterans Admin. Hospital[1-3]	Wadsworth, Kan.	P. E. Garber	207	1,563	1,403	141,083	2	4	4[p]	...
Veterans Admin. Hospital[1-3]	Louisville, Ky.	H. Gordon	166	2,485	2,475	120,924	1	3	4[p]	...
Veterans Admin. Hospital[1-3]	New Orleans	J. Ziskind	151	2,322	2,309	161,102	1	3	3[p]	...
Veterans Admin. Hospital[1-3]	Fort Howard, Md.	W. B. Vandegrift	138	912	875	98,210	1	1	2[p]	...
Veterans Admin. Hospital[1-3]	Boston (Jamaica Plain)	J. D. Houghton	357	3,556	3,544	457,896	1	3	3[p]	...
Veterans Admin. Hospital[1-3]	Dearborn, Mich.	(See Wayne University Affiliated Hospitals)								
Veterans Admin. Hospital[1-3]	Minneapolis	D. F. Gleason	285	5,092	4,632	323,122	2	4	4[p]	...
Veterans Admin. Hospital[1]	Kansas City, Mo.	R. C. Shaffer	154	1,591	1,155	148,143	2	4	4[p]	...
Veterans Admin. Hospital[1-3]	St. Louis	J. M. Burnett	81	1,490	1,380	64,883	1	2	4[p]	...
Veterans Admin. Hospital	East Orange, N. J.	.....	...	.....	.....	....	..	..	3[a]	...
Veterans Admin. Hospital[1-3]	Albuquerque, N. M.	W. Hentel	122	1,591	1,561	182,605	1	1	1[a]	...
Veterans Admin. Hospital[1-3]	Albany, N. Y.	T. S. Beecher	230	2,388	2,388	153,945	2	6	3[p]	...
Veterans Admin. Hospital[1-3]	Brooklyn	M. Bovarnick	280	3,578	3,578	314,335	1	4	4[p]	...
Veterans Admin. Hospital[1-3]	Buffalo	A. Golden	177	2,160	2,052	264,001	1	2	3[p]	...
Veterans Admin. Hospital[1-3]	New York City (Bronx)	B. S. Gordon	358	4,202	4,202	472,062	3	7	3[p]	...
Veterans Admin. Hospital[1-3]	Durham, N. C.	R. D. Baker	102	1,967	1,967	141,659	2	5	4[p]	...

Numerical and other references will be found on page 363.

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL										
Veterans Admin. Hospital [1-3]	Oteen, N. C.	O. Kanner	98	3,633	3,633	292,574	1	1	1p	...
Veterans Admin. Hospital [1-3]	Cleveland	J. R. Kahn	365	4,086	3,500	253,912	1	4	4p	...
Veterans Admin. Hospital [1-3]	Dayton, Ohio	S. Simerman	300	1,805	2,907	184,151	1	4	2a	...
Veterans Admin. Hospital [1-3]	Philadelphia	A. L. Pietroluongo	242	1,011	1,011	163,748	1	4	4p	...
Veterans Admin. Hospital [1]	Pittsburgh	E. R. Fisher	329	2,276	2,286	224,429	2	6	3p	...
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	J. M. Young	247	4,108	3,642	363,108	1	3	3p	...
Veterans Admin. Hospital [1]	Nashville, Tenn.	S. H. Auerbach	124	1,940	1,840	158,095	1	2	2p	...
Veterans Admin. Hospital [1-3]	Dallas, Texas	L. Weiss	372	2,027	2,027	152,234	1	4	3p	...
Veterans Admin. Hospital [3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)								
Veterans Admin. Hospital [1-3]	McKinney, Texas	B. E. McCain	128	2,671	2,671	208,251	1	4	4p	...
Veterans Admin. Hospital	Salt Lake City	O. N. Rambo, Jr.	63	999	899	70,350	1	2	1a	...
Veterans Admin. Hospital [1]	White River Junction, Vt.	R. E. Miller	79	973	887	79,445	1	1	1p	...
Veterans Admin. Hospital [1-3]	Richmond, Va.	J. R. Kriz	166	2,086	1,865	232,267	1	2	2p	...
Veterans Admin. Hospital [1-3]	Seattle	D. V. Brown	207	1,435	1,375	79,442	1	3	3p	...
Veterans Admin. Hospital [1-3]	Martinsburg, W. Va.	R. G. Gottschalk	121	1,281	1,002	182,920	1	2	2p	...
Veterans Admin. Hospital [1-3]	Milwaukee (Wood)	J. Lubitz	452	2,329	2,129	259,932	2	6	4p	...
NONFEDERAL										
Birmingham Baptist Hospital	Birmingham, Ala.	A. E. Casey	183	.....	.....	352,535	1	3	4p	...
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	J. F. A. McManus	273	5,716	5,716	222,696	2	6	4a	108
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	W. F. Scott, Jr.	80	1,987	1,987	136,418	1	1	1p	225
City Hospital	Mobile, Ala.	E. B. Wert	216	1,081	2,162	67,218	1	1	3p	225
Maricopa County General Hospital	Phoenix, Ariz.	M. Rosenthal	232	.....	.....	120,144	..	1	1a	300
University Hospital [1-3]	Little Rock, Ark.	A. Nettleship	387	7,153	7,153	133,177	2	5	3a	145
Kern General Hospital [1]	Bakersfield, Calif.	R. W. Huntington, Jr	276	2,653	2,499	158,535	1	3	4p	325
Herrick Memorial Hospital [1-3]	Berkeley, Calif.	H. R. Fishback	187	3,424	2,496	87,046	1	4	3p	175
St. Joseph's Hospital [1-3]	Burbank, Calif.	R. Straus	124	4,715	3,124	112,141	1	1	1p	200
City of Hope National Medical Center [1-3]	Duarte, Calif.	F. S. Preuss	112	3,200	3,150	80,729	1	1	1a	400
San Joaquin General Hospital [1-3]	French Camp, Calif.	H. J. Schneider	375	2,801	2,299	154,614	..	..	3a	...
Glendale Sanitarium and Hospital [1]	Glendale, Calif.	A. F. Brown	171	2,947	2,210	80,722	1	4	4p	165
Loma Linda Sanitarium and Hospital [1-3]	Loma Linda, Calif.	C. S. Small	174	3,439	3,300	7,100	2	7	4p	213
Seaside Memorial Hospital [1-3]	Long Beach, Calif.	J. A. Tuta	139	5,787	4,707	163,410	1	3	2p	150
California Hospital [1-3]	Los Angeles	A. Wright	162	6,104	4,578	139,175	1	2	4p	175
Cedars of Lebanon Hospital [1-3]	Los Angeles	N. B. Friedman	254	6,396	6,281	152,437	1	4	4p	150
Children's Hospital [1-3]	Los Angeles	W. C. Thomas	229	747	747	117,963	2	2	1a	90
Hospital of the Good Samaritan [1-3]	Los Angeles	L. J. Tragerman	166	6,082	4,257	154,930	2	2	4p	200
Los Angeles County General Hospital [1]	Los Angeles	E. M. Butt	1,890	14,755	13,188	688,484	2	4	4p	200
Queen of Angels Hospital [1-3]	Los Angeles	A. R. Camero	256	5,525	4,755	159,347	1	4	4p	150
St. Vincent's Hospital [3]	Los Angeles	J. E. Kahler	98	7,847	3,396	79,945	1	1	2p	225
White Memorial Hospital [1-3]	Los Angeles	O. B. Pratt	208	4,625	4,066	126,310	1	4	4p	146
Highland-Alameda County	Calif.	R. J. Parsons	324	3,906	3,330	144,977	1	4	4p	195
Kaiser Foundation Hospital	Calif.	M. Friedman	405	12,564	9,781	330,209	2	6	4p	175
Collis P. and Howard Hunti	Calif.	H. R. Fisher	277	.....	7,393	220,757	1	4	4p	240
Sacramento County Hospita.	Calif.	L. E. Nolan	588	2,690	2,104	187,088	1	1	1a	...
San Bernardino County Charity Hospital	San Bernardino, Calif.	J. D. Kirshbaum	349	2,131	1,702	10,924	2	2	2a	190
Mercy Hospital [1]	San Diego, Calif.	D. A. De Santo	206	7,587	7,015	170,329	1	4	4p	200
San Diego County General Hospital [1-3]	San Diego, Calif.	L. Palmer	332	1,951	1,530	111,989	1	4	4p	150
Franklin Hospital [1-3]	San Francisco	J. L. Carr	70	6,080	3,137	39,136	1	1	2p	116
French Hospital [1-3]	San Francisco	G. A. Watson	105	3,054	2,196	70,589	1	2	1p	125
Mount Zion Hospital [1-3]	San Francisco	G. R. Biskind	185	4,392	3,961	129,795	1	4	4p	...
St. Francis Memorial Hospital [1-3]	San Francisco	J. L. Zundell	101	5,911	3,694	72,650	1	2	2p	250
St. Luke's Hospital [3]	San Francisco	M. B. Black	87	4,314	2,628	101,609	2	2	2p	200
San Francisco Hospital										
Stanford University Service	San Francisco	A. J. Cox	243	1,279	1,279	....	1	1	3a	175
University of California Service [3]	San Francisco	J. L. Carr	243	1,740	1,740	....	1	1	3a	175
Stanford University Hospitals [1-3]	San Francisco	A. J. Cox	171	3,166	3,166	83,762	1	3	3a	80
University of California Hospital [1-3]	San Francisco	J. F. Reinhart	191	4,216	4,216	81,495	1	4	4p	87
O'Connor Hospital	San Jose, Calif.	L. R. Grams	115	3,254	2,760	121,386	1	2	2p	300
Santa Clara County Hospital [1]	San Jose, Calif.	D. L. Alcott	289	1,909	1,909	176,660	1	4	4p	...
Santa Barbara Cottage Hospital [1-3]	Santa Barbara, Calif.	E. L. Benjamin	88	3,440	3,070	48,040	1	3	2a	140
St. John's Hospital	Santa Monica, Calif.	....	...	.....	.....	....	..	..	2a	...
Harbor General Hospital [1-3]	Torrance, Calif.	S. Madden	518	3,383	3,286	272,176	1	4	4p	200
Glockner-Penrose Hospital [1-3]	Colorado Springs, Colo.	M. Berthrong	103	2,483	2,463	82,566	2	2	2a	200
Children's Hospital [1-3]	Denver	H. D. Palmer	119	628	620	114,580	1	4	4p	150
General Rose Memorial Hospital [1]	Denver	K. Neubuerger	121	5,347	4,174	92,347	1	3	3a	160
Mercy Hospital [1-3]	Denver	E. Hildebrand	114	4,400	4,142	47,786	..	2	2p	...
Presbyterian Hospital [1-3]	Denver	A. E. Lubchenco	156	3,756	2,778	61,997	1	2	2a	150
St. Joseph's Hospital [1-3]	Denver	S. M. Prather Ashe	201	6,230	6,230	79,703	1	2	4p	150
St. Luke's Hospital [1-3]	Denver	W. C. Black	181	9,960	7,110	132,302	1	4	4p	150
University of Colorado Medical Center										
Colorado General Hospital [1-3]	Denver	J. B. McNaught- J. H. Holmes	283	3,356	3,353	182,632	5	13	4p	150
Denver General Hospital [1-3]	Denver	W. C. White	723	2,786	2,786	250,576	..	..	4p	...
Colorado State Hospital [1-3]	Pueblo, Colo.	M. Gallavan	173	654	706	69,430	2	5	3p	415
Bridgeport Hospital [1-3]	Bridgeport, Conn.	I. B. Akerson	146	3,523	3,523	104,323	1	2	2a	240
Danbury Hospital [1-3]	Danbury, Conn.	P. T. McIlroy	106	.....	.....	72,043	1	1	1a	200
Greenwich Hospital [1-3]	Greenwich, Conn.	J. S. Morris	121	3,203	2,704	58,054	1	2	2p	150
Hartford Hospital [1-3]	Hartford, Conn.	R. E. Kendall	412	11,376	10,815	247,355	1	4	4p	50
St. Francis	Hartford, Conn.	L. P. Hastings	244	6,257	5,694	206,726	2	4	4p	100
Middlesex	Middletown, Conn.	C. E. McLeod	126	2,856	1,973	64,671	1	1	2p	100
New Britai	New Britain, Conn.	P. D. Rosahn	220	3,215	1,818	137,158	1	4	4p	200
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	A. A. Liebow	605	4,512	4,487	236,021	1	2	4p	50
Hospital of St. Raphael [3]	New Haven, Conn.	R. Nesbit	178	4,839	4,434	122,498	1	4	4p	125
Norwalk Hospital [1-3]	Norwalk, Conn.	R. N. Barnett	174	4,350	2,123	105,480	2	2	4p	160
Stamford Hospital	Stamford, Conn.	W. M. Layton, Jr.	180	3,291	3,022	154,160	4	4	4p	150
St. Mary's Hospital [1-3]	Waterbury, Conn.	M. E. Cox	148	4,550	2,954	149,161	1	3	3p	225
Waterbury Hospital [1]	Waterbury, Conn.	J. O. Collins	243	4,858	4,372	136,217	1	4	4p	225
Delaware Hospital [1-3]	Wilmington, Del.	J. W. Howard	266	5,961	5,787	181,503	1	4	4p	180
Memorial Hospital [1-3]	Wilmington, Del.	J. W. Abbiss	155	3,495	3,495	82,867	1	2	2a	175
Wilmington General Hospital [1-3]	Wilmington, Del.	J. V. Casella	72	2,742	2,742	102,949	1	1	1p	250
Central Dispensary and Emergency Hospital [1]	Washington, D. C.	F. W. Konzelmann	132	2,882	2,882	60,200	1	4	4p	225
Children's Hospital [1-3]	Washington, D. C.	E. C. Rice	99	511	505	116,240	1	2	2p	50
District of Columbia General Hospital [1-3]	Washington, D. C.	D. Weiss	648	3,407	3,407	236,281	2	6	4p	143
Doctors Hospital [1-3]	Washington, D. C.	O. B. Hunter, Jr.	135	5,545	4,831	205,031	1	2	2p	150
Garfield Memorial Hospital [1-3]	Washington, D. C.	E. C. Rice	40	3,675	3,504	103,205	1	3	4p	210
Georgetown University Hospital [3]	Washington, D. C.	C. F. Geschickter	303	4,139	4,139	231,946	5	10	4p	20
George Washington University Hospital [1-3]	Washington, D. C.	T. M. Peery	227	6,659	6,608	229,287	1	4	4p	150
Providence Hospital [1-3]	Washington, D. C.	K. McCoy	189	4,564	4,494	135,029	1	4	4p	200

Numerical and other references will be found on page 363.

17. PATHOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Sible [illegible] Hospital[1-3]	Washington, D. C.	O. B. Hunter	187	4,319	4,156	105,014	..	1	4[p]	200
Duv [illegible]	Jacksonville, Fla.	J. W. Eversole	247	2,701	2,701	131,577	1	2	2[a]	150
St. [illegible]	Jacksonville, Fla.	M. C. Wharton	147	4,582	3,151	100,648	1	2	4[p]	135
Jack [illegible][1-3]	Miami, Fla.	W. A. D. Anderson	602	9,061	7,452	317,370	4	9	4[p]	75
Mou [illegible]	Miami Beach, Fla.	M. Lev	109	2,329	2,027	115,111	1	4	4[p]	250
St. Francis Hospital [illegible]	Miami Beach, Fla.	R. J. Poppiti	124	2,487	2,487	68,487	1	1	1[p]	200
Crawford W. Long Memorial Hospital[1-3]	Atlanta, Ga.	D. Ayer	248	5,000	5,000	111,382	2	4	4[p]	110
Georgia Baptist Hospital[1-3]	Atlanta, Ga.	J. Funke-I. B. Ross	241	4,699	4,699	133,124	1	2	2[p]	...
Grady Memorial Hospital[1-3]	Atlanta, Ga.	R. Hausman	502	7,368	26,589	225,044	5	10	4[p]	20
Piedmont Hospital[1]	Atlanta, Ga.	W. B. Matthews	119	10,354	10,354	133,740	1	4	3[p]	160
University Hospital[1-3]	Augusta, Ga.	D. Mullins, Jr.- W. Shepeard	197	1,126	4,510	104,636	1	1	3[a]	160
Emory University Hospital[1]	Emory University, Ga.	W. H. Sheldon	196	2,845	2,845	116,525	1	4	4[p]	190
Alexian Brothers Hospital[3]	Chicago	J. P. Simonds	130	1,872	1,397	64,292	1	1	1[p]	125
American Hospital[1-3]	Chicago	W. F. Eisenstaedt	95	1,904	1,809	61,759	1	1	1[a]	50
Augustana Hospital[1-3]	Chicago	G. Milles	164	3,230	2,934	85,400	1	4	4[p]	150
Children's Memorial Hospital[1-3]	Chicago	J. D. Boggs	115	1,078	1,078	78,586	..	2	1[p]	75
Cook County Hospital[1-3]	Chicago	H. Popper	1,515	9,130	.....	444,494	4	4	4[p]	50
Englewood Hospital[3]	Chicago	G. T. Rich	115	1,760	1,740	65,270	1	1	1[a]	200
Grant Hospital[1-3]	Chicago	C. C. Mason	145	3,907	2,734	87,608	1	1	3[p]	225
Illinois Masonic Hospital[1-3]	Chicago	L. S. King	248	3,291	3,169	174,448	1	1	3[p]	115
Mercy Hospital[1-3]	Chicago	J. H. Peers	158	4,411	3,510	96,835	1	4	3	100
Michael Reese Hospital[1-3]	Chicago	O. Saphir	527	6,758	6,758	457,511	2	7	4[p]	100
Mount Sinai Hospital[1-3]	Chicago	I. Davidsohn	192	13,516	13,516	298,727	1	6	4[p]	100
Northwestern University Medical Center										
Chicago W[illegible] Hospital[1-3]	Chicago	T. C. Laipply	228	6,267	6,267	237,687	1	4	4[p]	50
Passavant [illegible]	Chicago	M. Wheelock	125	3,225	3,225	125	4	4	4[p]	50
Veterans A[illegible][1-3]	Chicago	H. A. Teloh	92	860	860	63,831	2	6	1[p]	...
Evanston Hospital[1-3]	Evanston, Ill.	H. G. Davis, Jr.	223	4,084	4,084	174,061	1	3	4[p]	50
Norwegian American Hospital[1-3]	Chicago	A. Learner	75	2,830	1,947	74,661	1	1	1[p]	225
Presbyterian Hospital[1]	Chicago	G. M. Hess	225	4,675	4,675	197,021	2	5	3[a]	125
Ravenswood Hospital[1-3]	Chicago	L. R. Ferraro	165	3,013	3,013	75,992	1	2	2[p]	75
St. Joseph Hospital[1-3]	Chicago	G. Stevenson	101	2,906	2,546	79,280	1	4	2[p]	200
St. Luke's Hospital[1-3]	Chicago	E. F. Hirsch	262	.....	.....	315,481	1	4	4[p]	50
St. Mary of Nazareth Hospital[1]	Chicago	E. W. Thurston	119	3,286	2,583	164,081	1	1	1[a]	150
University of Chicago Clinics[1-3]	Chicago	P. R. Cannon	383	6,103	5,807	368,289	1	3	4[p]	175
University of Illinois Research and Educational Hospitals[1]	Chicago	C. A. Krakower	263	5,739	5,739	419,060	2	6	4[p]	...
St. Francis Hospital[1-3]	Evanston, Ill.	J. W. Henry	240	5,728	4,429	184,572	1	3	3[p]	175
Methodist Hospital of Central Illinois[1-3]	Peoria, Ill.	H. I. Brown	164	5,669	4,459	84,749	1	2	4[p]	200
St. Francis Hospital[1-3]	Peoria, Ill.	J. R. Kraft-E. P. Elzi	257	5,233	3,935	131,775	1	2	4[p]	...
Rockford Memorial Hospital	Rockford, Ill.	M. O. Alexander	127	3,526	2,933	78,851	1	2	2[p]	200
St. Anthony Hospital[1-3]	Rockford, Ill.	A. R. K. Matthews	145	.....	.....	88,676	1	2	4[p]	250
St. Joseph's Hospital[1-3]	Fort Wayne, Ind.	S. M. Rabson- L. A. Schneider	187	4,429	4,118	108,741	2	8	2[p]	250
Methodist Hospital	Gary, Ind.	R. A. Burger	177	.....	.....	104,500	1	3	3[a]	100
Indianapolis General Hospital[1-3]	Indianapolis	P. Evans	341	2,756	2,737	154,740	1	4	3	210
Indiana University Medical Center Hospitals										
Indiana University Medical Center[1]	Indianapolis	E. Smith	348	4,926	8,716	206,972	4	10	4[p]	175
Veterans Admin. Hospital[1]	Indianapolis	D. Rosenbaum	261	1,404	1,404	165,576	3	3	3[p]	...
Methodist Hospital[1-3]	Indianapolis	H. M. Banks	231	12,083	8,337	442,692	1	4	4[p]	273
St. Vincent's Hospital[1-3]	Indianapolis	L. N. Foster	160	5,460	3,198	137,789	1	2	4[p]	275
St. Elizabeth Hospital	Lafayette, Ind.	J. M. McFadden	110	2,660	2,600	105,117	1	4	2[a]	175
Ball Memorial Hospital[1]	Muncie, Ind.	L. G. Montgomery	178	5,133	3,654	140,475	3	3	4[p]	200
South Bend Medical Foundation Hospitals	South Bend, Ind.	C. S. Culbertson	357	10,780	9,840	279,000	2	5	4[p]	300
Elkhart General Hospital	Elkhart, Ind.	...	...	.....	.....	....	..	..	..	...
St. Joseph Hospital	Mishawaka, Ind.	...	...	.....	.....	....	..	..	..	...
Memorial Hospital	South Bend, Ind.	...	...	.....	.....	....	..	..	..	...
St. Joseph's Hospital	South Bend, Ind.	...	...	.....	.....	....	..	..	..	...
Iowa Methodist Hospital[1-3]	Des Moines, Iowa	R. C. Dunn	171	4,628	5,167	114,395	1	2	2[a]	150
Mercy Hospital[1-3]	Des Moines, Iowa	F. C. Coleman	183	3,496	3,496	125,120	1	4	4[p]	300
University Hospitals[1-3]	Iowa City	E. D. Warner	465	5,887	5,887	93,424	2	4	3[p]	208
University of Kansas Medical Center[1-3]	Kansas City, Kan.	R. Stowell	296	7,730	7,656	7,830	5	10	4[p]	125
St. Francis Hospital[1-3]	Wichita, Kan.	W. P. Callahan, Jr.	218	9,252	8,891	173,642	1	4	4[p]	275
Wesley Hospital[1-3]	Wichita, Kan.	B. E. Stufer	168	.....	.....	103,620	1	1	1[a]	305
Children's Hospital	Louisville, Ky.	...	...	.....	.....	....	..	..	1[p]	...
Louisville General Hospital[1-3]	Louisville, Ky.	A. J. Miller	270	2,606	2,587	179,608	1	8	4[p]	153
Baton Rouge General Hospital[1]	Baton Rouge, La.	S. Colvin, Jr.- W. Randall, Jr.	83	4,243	4,243	127,034	1	1	1[p]	300
Charity Hospital of Louisiana[1]	New Orleans	E. Moss	1,850	14,964	14,964	686,060	3	12	4[p]	100
Hotel Dieu-Sisters Hospital[1]	New Orleans	R. M. Hartwell	110	8,113	8,113	179,971	1	4	4[p]	225
Southern Baptist Hospital[1]	New Orleans	E. H. Lawson	174	24,716	24,716	406,325	1	4	4[p]	225
Touro Infirmary[1]	New Orleans	A. J. Hertzog	211	8,705	6,571	221,257	1	4	4[p]	100
Confederate Memorial Medical Center[1]	Shreveport, La.	W. R. Mathews	297	5,477	5,477	233,975	1	3	3[a]	125
Eastern Maine General Hospital[1]	Bangor, Maine	R. C. Wadsworth	148	6,763	6,083	153,963	1	2	4[p]	100
Central Maine General Hospital[1]	Lewiston, Maine	C. F. Branch	215	5,423	5,423	89,769	1	2	4[p]	150
Maine General Hospital[1]	Portland, Maine	J. E. Porter	204	5,193	4,342	140,217	1	4	4[p]	100
Baltimore City Hospitals[1-3]	Baltimore	A. D. Pollack	249	1,700	1,700	137,415	1	3	3[a]	75
Johns Hopkins Hospital[1-3]	Baltimore	A. R. Rich	572	5,673	5,673	307,559	..	4	3[a]	20
Lutheran Hospital	Baltimore	J. A. Wagner	108	2,227	2,222	....	..	..	1[a]	...
Maryland General Hospital—Hospital for Women	Baltimore	...	...	.....	.....	....	..	..	3[a]	...
Mercy Hospital[1-3]	Baltimore	C. G. Warner	348	3,335	.....	402,331	..	1	3[a]	275
Sinai Hospital[1-3]	Baltimore	T. Weinberg	175	7,925	7,925	214,760	2	6	4[p]	110
Union Memorial Hospital[1-3]	Baltimore	W. C. Merkel	165	7,965	7,840	116,220	1	1	4[p]	115
University Hospital[1-3]	Baltimore	H. R. Spencer	338	6,678	.....	347,795	..	..	3[a]	...
Prince George's General Hospital	Cheverly, Md.	J. C. Burns	79	2,490	2,297	62,646	2	4	2[p]	200
Beverly Hospital	Beverly, Mass.	D. E. Brown	130	1,454	1,454	78,460	2	2	4[p]	100
Beth Israel Hospital[1-3]	Boston	M. J. Schlesinger	188	4,384	4,384	172,280	1	3	3[a]	42
Boston City Hospital[1-3]	Boston	G. K. Mallory	1,020	5,503	5,503	49,488	3	9	4[p]	112
Boston Lying-In Hospital[1-3]	Boston	W. S. Ober	114	2,042	2,042	80,225	1	2	1[p]	25
Carney Hospital[1-3]	Boston	M. W. Shapiro	103	3,244	3,244	94,662	1	1	1[a]	125
Children's Medical Center[1-3]	Boston	S. Farber	300	1,818	1,818	100,000	..	1	1[a]	50
Faulkner Hospital[1-3]	Boston	P. M. Le Compte	115	2,905	2,372	59,943	1	3	1[a]	162
Massachusetts General Hospital[1-3]	Boston	B. Castleman	784	8,218	8,218	10,842	3	9	4[p]	66.67
Massachusetts Memorial Hospital[1-3]	Boston	S. Sommers	108	2,711	2,711	9,074	1	2	2[p]	50
New England Center Hospital[1-3]	Boston	H. E. MacMahon	149	3,300	3,275	201,534	..	4	2[a]	150
New England Deaconess Hospital[1-3]	Boston	S. Warren	229	.....	.....	246,775	3	10	4[p]	135
Peter Bent Brigham Hospital[1-3]	Boston	G. J. Dammin	276	2,868	2,868	66,199	5	6	3[a]	42
St. Elizabeth's Hospital[1-3]	Boston	J. H. Graham	117	4,367	4,367	123,998	1	1	1[a]	125
Mount Auburn Hospital[1-3]	Cambridge, Mass.	H. E. MacMahon	112	2,813	2,789	92,725	1	1	1	125

Numerical and other references will be found on page 363.

17. PATHOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered[9]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Truesdale Hospital[1-3]	Fall River, Mass.	W. Freeman	71	3,337	1,474	80,821	1	1	1[a]	150
Burbank Hospital[1]	Fitchburg, Mass.	H. J. Sparling	98	2,800	2,800	68,812	1	1	1[p]	150
Lawrence General Hospital[1-3]	Lawrence, Mass.	L. S. Jolliffe	149	1,482	1,482	83,761	1	4	3[p]	175
Lynn Hospital[1-3]	Lynn, Mass.	H. G. Olken	122	4,045	4,045	112,252	1	1	1[p]	150
Malden Hospital[1-3]	Malden, Mass.	M. V. MacKenzie	76	2,342	2,342	76,885	1	1	1[a]	125
St. Luke's Hospital	New Bedford, Mass.	V. Kiarsis	114	4,117	3,207	192,745	2	4	2[a]	200
Newton-Wellesley Hospital[1-3]	Newton, Mass.	D. Skinner	104	4,702	3,214	105,279	2	4	2[p]	170
Quincy City Hospital[1-3]	Quincy, Mass.	R. B. Street, Jr.	143	2,756	.....	103,843	1	2	2[p]	162
Salem Hospital[1-3]	Salem, Mass.	D. A. Nickerson	1,282	6,440	6,440	89,772	1	4	4[p]	125
Springfield Hospital[1-3]	Springfield, Mass.	W. Kaufmann	140	4,290	4,290	114,733	1	3	2[a]	125
Pondville Hospital[1]	Walpole, Mass.	S. Warren	118	1,603	1,603	37,677	..	2	1[p]	490
Worcester City Hospital[3]	Worcester, Mass.	F. Fite	305	3,161	2,561	123,676	2	2	3[p]	215
St. Joseph Mercy Hospital[1-3]	Ann Arbor, Mich.	S. C. Howard	106	3,539	7,078	118,535	..	..	2	200
University Hospital[1-3]	Ann Arbor, Mich.	C. V. Weller	517	9,724	6,482	2,685	4	12	3	145
Leila Y. Post Montgomery Hospital[1]	Battle Creek, Mich.	A. A. Humphrey	323	8,062	8,062	72,435	..	..	3[p]	275
Grace Hospital[1-3]	Detroit	C. L. Owen	330	9,685	9,685	241,936	1	4	3[p]	225
Harper Hospital[1-3]	Detroit	P. F. Morse	308	7,581	7,581	263,126	1	4	4[p]	225
Henry Ford Hospital[1-3]	Detroit	F. W. Hartman	397	8,973	8,973	477,431	2	8	4[p]	225
Mount Carmel Mercy Hospital[1-3]	Detroit	L. W. Gardner	305	7,527	7,501	226,690	1	4	4[p]	225
Providence Hospital[1-3]	Detroit	D. H. Kaump	246	4,523	4,523	130,180	1	4	4[p]	250
Wayne University Affiliated Hospitals										
Veterans Admin. Hospital[1-3]	*Dearborn, Mich.*	M. W. Wilson	335	2,857	2,857	330,534	2	5	4[p]	...
Detroit Memorial Hospital[1]	Detroit	J D. Langston	131	2,406	2,406	68,663	1	3	4[p]	250
Herman Kiefer Hospital[1-3]	Detroit	P. C. Martineau	240	1,472	1,472	1,067,364	2	2	1[p]	273
Receiving Hospital[1-3]	Detroit	O. A. Brines	815	5,911	5,911	471,951	2	8	4[p]	270
Sinai Hospital	Detroit	S. D. Kobernick	159	3,862	3,010	115,629	1	3	2[p]	300
Woman's Hospital[1-3]	Detroit	E. Jennings	134	14,699	14,510	170,848	1	2	2[a]	250
Wayne County General Hospital and Infirmary[1-3]	Eloise, Mich.	S. E. Gould	395	3,981	3,983	240,019	2	6	4[p]	279
Hurley Hospital[1]	Flint, Mich.	G. R. Backus	258	7,881	3,205	114,936	1	1	4[p]	325
McLaren General Hospital[1]	Flint, Mich.	G. R. Backus	123	3,277	3,246	92,083	1	1	1[a]	325
St. Joseph's Hospital[1-3]	Flint, Mich.	G. R. Backus	177	4,239	3,045	105,327	1	1	1[a]	400
Blodgett Memorial Hospital[1-3]	Grand Rapids, Mich.	C. A. Payne	193	6,945	6,945	118,152	1	2	2[p]	225
Butterworth Hospital[1-3]	Grand Rapids, Mich.	J. D. Mann	183	8,922	5,479	144,669	1	2	2[a]	225
Edward W. Sparrow Hospital[1-3]	Lansing, Mich.	C. E. Black	190	4,235	4,235	109,054	1	8	3[a]	350
Pontiac General Hospital[1-3]	Pontiac, Mich.	J. J. Marra	147	.....	.....	133,490	1	1	2[p]	...
St. Joseph Mercy Hospital[1-3]	Pontiac, Mich.	R. E. Olsen	106	3,644	3,608	89,925	1	1	2[p]	325
Saginaw General Hospital[1-3]	Saginaw, Mich.	R. V. Bucklin	151	3,039	2,932	90,942	1	2	4[p]	325
St. Luke's Hospital[1-3]	Duluth, Minn.	A. H. Wells	398	7,387	7,135	804,642	1	4	4[p]	200
St. Mary's Hospital[1-3]	Duluth, Minn.	W. V. Knoll	264	3,723	3,348	....	1	4	4[p]	175
Minneapolis General Hospital[1-3]	Minneapolis	J. I. Coe	370	3,300	2,461	440,596	1	2	3[a]	182
Northwestern Hospital[1-3]	Minneapolis	F. H. Lott	200	4,675	.....	103,433	1	1	2[a]	200
St. Barnabas Hospital[1-3]	Minneapolis	N. H. Lufkin	139	4,664	3,868	117,487	1	1	2[a]	...
Swedish Hospital[1-3]	Minneapolis	A. R. Jay	248	5,533	3,977	113,869	1	1	2[a]	200
University of Minnesota Hospitals[1-3]	Minneapolis	J. Dawson	443	5,488	5,488	578,230	2	5	4[p]	162
Mayo Foundation[1-3]	Rochester, Minn.	J. W. Kernohan	858	26,042	26,042	950,000	6	22	4[p]	150
Ancker Hospital[1-3]	St. Paul	J. F. Noble	366	1,599	1,599	194,058	1	1	2[a]	162
Charles T. Miller Hospital[1]	St. Paul	K. Ikeda	124	5,446	5,171	155,887	..	1	4[p]	185
St. Joseph's Hospital[1-3]	St. Paul	E. M. James	141	4,653	4,495	109,881	1	2	2[p]	162
St. Louis County Hospital[1-3]	Clayton, Mo.	J. Wyatt	165	1,200	1,088	116,843	1	3	3	225
Kansas City General Hospital No. 1[1-3]	Kansas City, Mo.	V. B. Buhler	397	2,330	2,090	449,344	1	4	4[p]	150
Menorah Medical Center[2-3]	Kansas City, Mo.	H. Cohen	154	5,263	3,325	133,938	1	3	3[p]	200
Research Hospital[1-3]	Kansas City, Mo.	H. K. B. Allebach	165	4,531	4,235	160,642	1	3	4[p]	175
St. Joseph Hospital[1-3]	Kansas City, Mo.	R. W. Kerr	188	6,314	5,149	205,193	2	4	3[a]	250
St. Luke's Hospital[1-3]	Kansas City, Mo.	F. C. Helwig	221	12,861	11,575	166,945	2	5	4[p]	175
St. Mary's Hospital[1-3]	Kansas City, Mo.	A. Lapi	224	4,309	3,631	109,955	2	2	4[p]	200
Barnes Hospital[1-3]	St. Louis	W. S. Hartroft	618	7,381	7,381	436,152	2	13	4[p]	50
De Paul Hospital[1-3]	St. Louis	J. D. Bauer	136	3,048	2,569	181,534	2	2	2[a]	200
Homer G. Phillips Hospital[1-3]	St. Louis	J. O. Blache	268	2,836	2,654	60,808	2	4	2[p]	190
Jewish Hospital[1-3]	St. Louis	H. T. Blumenthal	175	5,003	4,253	143,291	2	3	4[p]	100
Missouri Baptist Hospital[1-3]	St. Louis	W. R. Platt	155	4,577	15,644	94,632	1	1	3[p]	175
St. John's Hospital[2-3]	St. Louis	H. N. Allen	187	8,996	3,260	136,368	1	2	2[p]	200
St. Louis City Hospital[1-3]	St. Louis	J. Saxton	510	812	3,247	237,867	3	6	3[a]	190
St. Mary's Group of Hospitals[1-3]	St. Louis	H. Pinkerton	315	8,888	6,206	390,487	2	8	3	200
Montana Deaconess Hospital[1-3]	Great Falls, Mont.	E. J. Eichwald	107	1,572	1,174	54,597	1	1	1[p]	200
Lincoln General Hospital[1-3]	Lincoln, Neb.	H. B. Miller	109	3,364	3,364	72,044	1	1	1[a]	200
Bishop Clarkson Memorial Hospital[1-3]	Omaha	M. E. Foster	4,002	4,002	3,183	3,183	1	2	3[p]	175
Creighton Memorial-St. Joseph's Hospital	Omaha	B. C. Russum	201	14,502	14,502	14,323	1	4	4[p]	175
Nebraska Methodist Hospital[1-3]	Omaha	J. R. Schenken	106	6,364	6,364	75,500	1	4	4[p]	200
University of Nebraska Hospital[1-3]	Omaha	J. R. Schenken	97	.....	.....	112,645	1	4	4[p]	...
Mary Hitchcock Memorial Hospital[1-3]	Hanover, N. H.	R. E. Miller	172	3,753	3,486	147,473	1	4	4[p]	188
Elliot Hospital[1-3]	Manchester, N. H.	S. M. Brooks	105	2,023	1,504	59,783	1	1	1[p]	75
Atlantic City Hospital[1-3]	Atlantic City, N. J.	M. Ackerman	109	2,231	2,231	56,134	1	1	2[p]	200
Cooper Hospital[1-3]	Camden, N. J.	W. T. Read, Jr.	319	3,696	3,433	150,795	1	1	4[p]	200
West Jersey Hospital[1-3]	Camden, N. J.	A. S. Conston	118	2,392	2,355	119,161	2	4	3[a]	200
Englewood Hospital	Englewood, N. J.	I. A. Gaspar	83	3,826	2,843	131,840	..	1	1[a]	150
Christ Hospital	Jersey City, N. J.	A. J. Gitlitz	109	3,841	3,359	74,461	2	2	2[p]	175
Jersey City Medical Center[1-3]	Jersey City, N. J.	A. M. Gnassi	259	9,002	9,022	278,267	2	3	4[p]	125
Monmouth Memorial Hospital[1-3]	Long Branch, N. J.	M. R. Rush	131	3,009	2,703	108,920	1	2	2[a]	200
Mountainside Hospital[1-3]	Montclair, N. J.	J. L. Work	154	4,766	4,571	143,747	2	2	3[p]	175
Morristown Memorial Hospital[1-3]	Morristown, N. J.	H. F. Luddecke	162	3,658	3,240	79,324	2	3	3[a]	185
Burlington County Hospital	Mt. Holly, N. J.	J. T. Bauer	125	1,098	1,098	40,831	1	1	1[a]	100
Harrison S. Martland Medical Center[1-3]	Newark, N. J.	E. Albano	278	1,949	3,286	197,060	2	6	3[a]	162
Hosp. of St. Barnabas and for Women and Children[1-3]	Newark, N. J.	W. G. Bernhard	103	2,883	2,523	82,903	1	2	3[p]	150
Newark Beth Israel Hospital[1-3]	Newark, N. J.	L. Goldman	214	5,043	5,043	75,654	1	1	4[p]	75
Presbyterian Hospital[1-3]	Newark, N. J.	S. A. Goldberg	356	6,168	4,921	124,665	2	2	2[p]	125
St. Michael's Hospital[1-3]	Newark, N. J.	S. J. Rose	140	4,281	4,281	160,514	..	2	4[p]	125
Orange Memorial Hospital[1-3]	Orange, N. J.	A. R. Abel	180	3,216	3,216	91,875	1	4	4[p]	150
Bergen Pines County Hospital	Paramus, N. J.	...	...	.....	.....	....	..	..	2[a]	...
Passaic General Hospital[1-3]	Passaic, N. J.	J. R. Gannon	119	2,738	2,429	73,249	1	1	3[p]	250
St. Mary's Hospital[1-3]	Passaic, N. J.	R. Brill	91	2,378	2,378	59,210	..	1	2[p]	200
Barnert Memorial Hospital	Paterson, N. J.	...	...	.....	.....	....	..	..	2[p]	...
Paterson General Hospital[1-3]	Paterson, N. J.	A. H. Davis	129	4,508	4,317	45,677	1	2	2[p]	125
St. Joseph Hospital[1-3]	Paterson, N. J.	G. B. Kim	193	3,460	3,460	84,147	3	3	3[p]	150
Muhlenberg Hospital[1-3]	Plainfield, N. J.	H. Hansen	154	3,254	2,925	90,744	1	1	1[p]	200
Overlook Hospital	Summit, N. J.	G. L. Erdman	111	.....	.....	82,931	1	2	2[p]	200
Mercer Hospital[3]	Trenton, N. J.	T. K. Rathmell	116	1,756	2,079	102,740	..	2	4[p]	150
St. Francis Hospital[1-3]	Trenton, N. J.	S. Weintraub	174	2,596	.....	137,838	2	2	2[a]	...
Albany Hospital[1-3]	Albany, N. Y.	A. W. Wright	430	7,957	7,957	242,513	1	4	4[p]	...

Numerical and other references will be found on page 363.

17. PATHOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Month)
B[illegible]	[illegible]	J. J. Clemmer	202	8,099	8,099	326,340	2	6	4^p	250
[illegible]	[illegible]	...	...	...	...	...	..	..	..	...
[illegible]	[illegible]	...	...	...	...	...	..	..	..	...
[illegible]	[illegible]	...	...	...	...	...	..	..	..	...
B[illegible]	[illegible]	T. Cope, Jr.	182	2,579	2,515	111,569	1	1	4^p	150
B[illegible]	[illegible]	D. M. Spain	63	4,456	4,429	283,164	2	8	4^p	125
B[illegible]	[illegible]	J. A. De Veer	181	4,500	4,450	134,450	1	4	4^p	...
C[illegible]	[illegible]	H. Fink	153	1,278	1,278	141,356	1	4	4^p	105
Cumberland Hospital[1-3]	Brooklyn	S. H. Polayes	163	2,051	1,788	14,083	1	4	4^p	...
Greenpoint Hospital[1-3]	Brooklyn	R. Aronoff	126	7,826	7,826	204,615	2	3	3^p	105
Jewish Chronic Disease Hospital[1-3]	Brooklyn	B. W. Volk	81	.....	.....	240,000	1	1	1^c	175
Jewish Hospital[1-3]	Brooklyn	D. Grayzel	198	6,739	5,557	142,041	2	5	4^p	75
Kings County Hospital	Brooklyn	P. Fitzgerald	...	.....	.....	....	2	4	4^p	...
Long Island College Hospital[1-3]	Brooklyn	T. G. Morrione	165	3,625	3,625	142,264	1	4	4^p	75
Maimonides Hospital[1-3]	Brooklyn	A. R. Kantrowitz	190	4,814	268,172	268,172	..	3	3^p	75
Methodist Hospital[2-3]	Brooklyn	B. S. Herr, Jr.	114	3,502	3,490	106,593	1	3	3^p	175
Norwegian Lutheran Deaconesses' Home and Hospital[1-3]	Brooklyn	E. S. Wedding	132	2,052	2,052	109,181	1	2	1^p	185
St. Catherine's Hospital[2-3]	Brooklyn	M. Wachstein	99	1,643	1,643	118,201	1	2	2^p	125
St. Mary's Hospital[1-3]	Brooklyn	W. Moltrier, Jr.	76	2,120	2,120	58,658	1	1	1^p	175
Buffalo General Hospital[1-3]	Buffalo	K. L. Terplan	363	6,128	16	6,128	2	2	2^a	175
Deaconess Hospital[1-3]	Buffalo	S. Tannhauser	102	5,826	5,034	16,381	1	2	3^p	250
Edward J. Meyer Memorial Hospital[1]	Buffalo	S. Sanes	359	4,152	.....	307,174	1	3	2^a	179
Millard Fillmore Hospital[1-3]	Buffalo	A. V. Postoloff	221	6,306	6,306	255,874	1	3	2^a	255
Arnot-Ogden Memorial Hospital[1-3]	Elmira, N. Y.	B. W. Juveller	102	2,374	2,374	73,817	..	..	1^a	...
Flushing Hospital and Dispensary[1-3]	Flushing, N. Y.	J. Werne-I. Garrow	154	6,492	11,684	103,322	1	3	4^p	150
Glens Falls Hospital	Glens Falls, N. Y.	...	...	.....	.....	....	..	..	1^p	...
Meadowbrook Hospital[1-3]	[illegible] Y.	T. J. Curphey	725	8,800	3,109	310,246	3	9	4^p	225
Mary Immaculate Hospital	[illegible] Y.	M. Bevilacqua	72	2,957	2,515	145,517	2	4	2^p	120
Queens Hospital Center[1-3]	[illegible] Y.	G. Silverman	578	3,969	3,797	717,441	5	8	4^p	105
Charles S. Wilson Memoria[illegible]	[illegible] Y.	A. Kosinski	199	5,859	3,981	160,552	1	4	4^p	200
Kingston Laboratory Hospitals[1-3]	Kingston, N. Y.	H. Dernan	177	3,784	3,784	147,571	1	2	2^p	250
Kingston Hospital	Kingston, N. Y.	...	...	.....	.....	....	..	..	..	...
Benedictine Ho[illegible]	Kingston, N. Y.	...	...	.....	.....	....	..	..	..	...
Ulster County [illegible]	Kingston, N. Y.	...	...	.....	.....	....	..	..	..	...
St. John's Long [illegible]	[illegible]sland City, N. Y.	N. Mitchell	91	.....	.....	53,808	2	2	3^a, 1^p	150
Nassau Hospital[1-3]	Mineola, N. Y.	R. Durham	102	3,300	3,250	68,192	1	1	1^p	170
Mount Vernon Hospital[3]	Mount Vernon, N. Y.	J. G Sharnoff	96	4,172	4,172	84,832	1	1	3^p	150
New Rochelle Hospital[1-3]	*New Rochelle*, N. Y.	W. C. *Schraft*	*126*	*7,196*	*7,196*	*108,797*	1	1	1^a	225
Bellevue Medical Center										
Div. III—New York University College of Medicine[1-3]	New York City	S. Wilens	760	6,816	6,816	1,064,818	1	8	4^p	71
Beth Israel Hospital[1-3]	New York City	W. Antopol	141	3,884	3,884	181,572	2	2	3^p	135
Bronx Hospital[1-3]	New York City	J. Felsen	92	6,102	5,642	113,970	1	2	2^p	100
Doctors Hospital[1-3]	New York City	J. R. Lisa	45	3,661	3,632	77,264	..	..	1^a	200
Flower and Fifth Avenue Hospitals[1-3]	New York City	F. D. Speer	126	5,238	4,025	167,816	2	4	4^p	...
Fordham Hospital[1-3]	New York City	L. J. Millman	256	3,792	3,792	191,933	1	2	2^a	105
Francis Delafield Hospital[1-3]	New York City	H. P. Smith	275	2,345	2,345	103,472	5	6	2^a	106
Goldwater Memorial Hospital[1-3]	New York City	J. Rosenthal	101	3,435	3,435	87,020	1	3	2^p	104
Harlem Hospital[1-3]	New York City	V. Dolgopol	329	5,776	5,776	877,449	..	2	4^p	...
Hospital for Joint Diseases[1-3]	New York City	H. L. Jaffe	44	2,415	2,415	84,531	1	1	1^a	80
Jewish Memorial Hospital[3]	New York City	A. Schwarz	94	2,210	5,238	94,936	1	1	1^p	150
Knickerbocker Hospital[1-3]	New York City	W. Finkelstein	78	1,474	1,221	....	1	1	1^a	110
Lebanon Hospital[1-3]	New York City	J. C. Ehrlich	83	3,669	.....	109,212	..	2	3^p	100
Lenox Hill Hospital[1-3]	New York City	G. L. Rohdenburg	150	.....	.....	4,931	1	1	1^a	180
Memorial Center for Cancer and Allied Diseases[1-3]	New York City	F. W. Stewart	225	20,791	20,971	20,971	..	10	3^a	98
Metropolitan Hospital[1-3]	New York City	F. Speer	307	3,456	3,439	333,924	2	3	2^a	104
Montefiore Hospital[1-3]	New York City	H. Zimmerman	371	3,655	3,655	138,354	3	6	3^p	75
Morrisania City Hospital[1-3]	New York City	M. R. Dacso	221	.....	.....	174,394	2	3	4^p	105
Mount Sinai Hospital[1-3]	New York City	P. Klemperer-G. Shwartzman	489	8,610	8,610	301,851	2	10	4^p	50
New York City Hospital[1-3]	New York City	A. Blaustein	193	1,923	1,816	141,624	1	4	4^p	104
New York Hospital[1-3]	New York City	J. G. Kidd-J. Pearce	429	8,184	7,426	437,427	1	5	4^p	84
New York Polyclinic Medical School and Hospital[1-3]	New York City	D. J. Di Maio	95	8,896	8,896	1,009	1	2	2^p	...
New York University-Bellevue Medical Center										
University Hospital[1-3]	New York City	M. Richter	87	6,194	5,154	618,050	2	4	2^p	85
Presbyterian Hospital[1]	New York City	H. P. Smith	586	14,358	14,214	401,793	5	8	3^a	208
Roosevelt Hospital[1-3]	New York City	W. W. Brandes	148	4,753	16,178	150,353	1	2	2^a	116
St. Barnabas Hospital for Chronic Diseases[1-3]	New York City	H. K. *Russell*	*155*	*1,214*	*1,214*	*70,748*	*1*	2	2^p	200
St. Clare's Hospital[1-3]	New York City	J. M. Ravid	118	2,525	2,510	83,113	1	2	1^p	125
St. Luke's Hospital[1-3]	New York City	C. F. Begg	202	3,404	3,404	178,176	1	4	4^p	75
St. Vincent's Hospital[1-3]	New York City	A. Rottino	360	3,632	3,632	250,356	1	2	2^a	100
United Hospital[1-3]	Port Chester, N. Y.	M. Loder	87	2,598	2,340	91,784	1	1	1^p	200
Genesee Hospital[3]	Rochester, N. Y.	J. Abbott	210	4,640	4,000	146,163	1	1	3^a	75
Rochester General Hospital[1-3]	Rochester, N. Y.	M. G. Bobrod	291	7,221	6,490	137,588	3	9	4^p	100
St. Mary's Hospital[1-3]	Rochester, N. Y.	J. Adler	227	3,691	3,691	115,725	1	3	4^p	200
Strong Memorial-Rochester Municipal Hospital[1-3]	Rochester, N. Y.	G. H. Whipple	684	5,319	.....	....	4	8	3^a	...
Ellis Hospital[1-3]	Schenectady, N. Y.	E. Kellert	183	5,004	5,004	232,255	1	3	3^p	175
Staten Island Hospital[1-3]	Staten Island, N. Y.	V. Altman	100	1,823	1,823	61,222	1	1	1^a	200
St. Joseph's Hospital[1-3]	Syracuse, N. Y.	H. J. Dick	124	3,862	3,862	120,751	1	1	4^p	191
State University of New York Medical Center[1-3]	Syracuse, N. Y.	J. H. Ferguson	636	8,804	8,804	....	6	6	3^a	192
Samaritan Hospital[1-3]	Troy, N. Y.	C. G. Burn	73	2,509	1,768	62,911	1	1	1^p	250
Utica State *Hospital*[1-3]	*Utica*, N. Y.	N. M. Levine	137	95	95	83,781	1	2	4^p	...
Grasslands Hospital[1-3]	Valhalla, N. Y.	V. A. Bradess	610	2,726	2,726	223,081	1	8	4^p	175
St. John's Riverside Hospital[3]	Yonkers, N. Y.	C. De Angelis	76	1,622	1,600	64,196	1	1	1^p	250
North Carolina Memorial Hospital[1]	Chapel Hill, N. C.	K. M. Brinkhous	160	2,318	4,726	4,726	2	6	4^p	145
Charlotte Memorial Hospital[1]	Charlotte, N. C.	P. Kimmelstiel	176	7,197	7,038	194,489	1	4	4^p	250
Duke University Hospital[1-3]	Durham, N. C.	W. D. Forbus	340	8,405	8,405	527,278	3	12	3^a	50
Watts Hospital[1-3]	Durham, N. C.	J. U. Gunter	68	.....	.....	145,131	..	1	2^a	100
North Carolina Baptist Hospital[1-3]	Winston-Salem, N. C.	R. P. Morehead	177	30,692	30,692	264,877	4	7	4^p	125
Akron General Hospital[1-3]	Akron, Ohio	G. R. Dochat	175	5,228	4,420	190,397	1	1	2^p	250
City Hospital[1-3]	Akron, Ohio	L. Catron	320	7,597	7,597	250,834	1	3	2^a	250
Aultman Hospital[1-3]	Canton, Ohio	D. G. Henderson	259	9,602	9,602	190,096	3	3	4^p	275
Bethesda Hospital	Cincinnati	J. B. Hamblet	104	4,495	3,444	81,726	2	4	3^p	200
Christ Hospital[1]	Cincinnati	P. N. Jolly	173	4,902	4,086	150,861	1	1	1^a	200
Cincinnati General Hospital[1-3]	Cincinnati	E. A. Gall	1,039	6,009	6,009	135,152	4	7	4^p	84
Good Samaritan Hospital[1-3]	Cincinnati	W. T. Collins	231	5,345	4,844	176,968	1	2	3^a	175
Jewish Hospital[1-3]	Cincinnati	P. Wasserman	263	6,407	5,922	217,589	1	4	4^p	145
City Hospital[1-3]	Cleveland	T. D. Kinney	366	2,351	2,351	293,390	2	8	4^p	150
Cleveland Clinic Hospital[1-3]	Cleveland	J. B. Hazard	167	7,442	7,442	460,042	1	4	4^p	175

Numerical and other references will be found on page 363.

17. PATHOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Lutheran Hospital [1-3]	Cleveland	W. Sinclair, Jr.	141	2,724	2,724	72,652	1	1	1^a	162
Mount Sinai Hospital [1]	Cleveland	H. Goldblatt	498	5,474	5,474	208,634	1	4	4^p	215
St. Luke's Hospital [1]	Cleveland	R. Dominguez	247	5,771	5,443	234,518	1	4	4^p	120
St. Vincent Charity Hospital [1-3]	Cleveland	J. S. Mackrell, Jr.	127	3,829	5,250	144,177	2	2	2^a	210
University Hospitals [1-3]	Cleveland	A. R. Moritz	499	8,401	8,401	120,322	3	7	4^p	125
Children's Hospital [1]	Columbus, Ohio	E. Von Haam	146	794	794	68,816	2	2	2^p	200
Grant Hospital [1-3]	Columbus, Ohio	B. H. Hurd	94	4,167	2,972	74,199	1	1	1^a	...
Ohio State University Hospitals University Hospital [1-3]	Columbus, Ohio	E. Von Haam	757	10,258	10,258	496,005	3	10	4^p	150
White Cross Hospital [1-3]	Columbus, Ohio	R. J. Johansmann	134	15,694	15,463	185,993	1	4	4^p	275
Miami Valley Hospital [1-3]	Dayton, Ohio	M. Oosting	532	10,391	10,391	200,925	1	8	4^p	160
Huron Road Hospital [1-3]	East Cleveland, Ohio	E. Goodsitt	163	5,240	5,240	187,022	1	3	4^p	210
Mercy Hospital [1-3]	Hamilton, Ohio	K. E. Lande	151	1,610	1,610	104,112	1	1	1^a	250
St. Rita's Hospital [1-3]	Lima, Ohio	C. L. Blumstein	160	4,158	3,188	121,058	1	4	4^p	225
Mercy Hospital [1-3]	Toledo, Ohio	E. L. Burns	153	.....	.....	139,189	1	3	4^p	250
St. Vincent's Hospital [1-3]	Toledo, Ohio	M. F. Vidoli	209	5,581	5,581	166,026	1	1	2^a	225
Toledo Hospital [1-3]	Toledo, Ohio	B. Steinberg	191	5,039	4,752	131,426	1	3	4^p	200
St. Elizabeth Hospital [1-3]	Youngstown, Ohio	J. Lo Cricchio	149	6,669	5,346	123,875	1	1	4^p	300
Youngstown Hospital [1-3]	Youngstown, Ohio	A. E. Rappoport	446	6,535	6,535	231,177	2	8	4^p	175
University Hospital [1-3]	Oklahoma City	H. C. Hopps	219	3,692	3,332	197,762	2	5	4^p	200
Hillcrest Medical Center [1]	Tulsa, Okla.	L. Lowbeer	154	5,351	4,051	112,066	2	4	4^p	...
St. John's Hospital [1-3]	Tulsa, Okla.	E. Palik	118	5,317	5,317	165,426	2	2	4^p	...
Emanuel Hospital [1-3]	Portland, Ore.	V. D. Sneeden	240	6,428	5,636	169,940	1	1	1^a	175
Good Samaritan Hospital [1-3]	Portland, Ore.	W. L. Lehman	321	6,696	5,789	219,617	2	6	4^p	250
Providence Hospital [1-3]	Portland, Ore.	J. Minckler	270	3,862	3,574	136,892	1	4	4^p	175
St. Vincent's Hospital [1-3]	Portland, Ore.	F. R. Menne	204	10,264	9,049	216,550	1	4	4^p	175
Univ. of Oregon Med. School Hospitals and Clinics [1-3]	Portland, Ore.	W. C. Hunter-R. Grondahl	405	3,259	3,259	218,600	5	9	4^p	...
Abington Memorial Hospital [1-3]	Abington, Pa.	J. Eiman	169	3,955	3,919	225,338	1	3	4^p	100
Allentown Hospital [1-3]	Allentown, Pa.	L. Thomas	280	3,798	3,434	192,221	1	2	4^p	225
Sacred Heart Hospital [1-3]	Allentown, Pa.	D. E. Stader	129	5,773	5,356	148,500	1	2	2^a	225
St. Luke's Hospital [1-3]	Bethlehem, Pa.	E. J. Benz	179	3,109	2,798	111,431	1	2	4^p	275
Bryn Mawr Hospital [1-3]	Bryn Mawr, Pa.	M. M. Strumia	184	4,745	4,555	219,905	1	4	4^p	100
Chester Hospital [1-3]	Chester, Pa.	G. B. Sickel	150	3,000	3,000	100,000	1	1	1^p	50
George F. Geisinger Memorial Hospital [1-3]	Danville, Pa.	T. K. Hepler	118	2,774	2,700	122,957	1	2	4^p	125
Thomas M. Fitzgerald Mercy Hospital [1-3]	Darby, Pa.	A. Valdes-Dapena-M. M. Porter	105	1,939	1,939	99,458	2	6	3^p	200
Hamot Hospital [1-3]	Erie, Pa.	E. L. Armstrong	181	2,486	2,486	177,647	1	4	4^p	200
St. Vincent's Hospital [1-3]	Erie, Pa.	R. B. Eisenberg	128	2,620	.....	154,821	1	4	4^p	100
Harrisburg Polyclinic Hospital [1]	Harrisburg, Pa.	J. S. Forrester	167	.....	.....	173,200	1	1	2^a	250
Lancaster General Hospital	Lancaster, Pa.	W. M. O'Donnell	206	3,735	3,735	152,768	2	4	2^a	200
St. Joseph's Hospital [1-3]	Lancaster, Pa.	E. E. Ziegler	134	5,486	5,486	93,147	1	2	2^a	300
Albert Einstein Medical Center-Northern Division [1-3]	Philadelphia	H. Brody	243	4,643	4,643	224,479	2	4	2^p	150
Albert Einstein Medical Center-Southern Division [1-3]	Philadelphia	A. I. Rubenstone	125	4,229	911	158,059	4	4	4^p	150
Episcopal Hospital [1-3]	Philadelphia	W. P. Belk	178	2,495	2,495	169,278	1	1	4^p	150
Frankford Hospital [1-3]	Philadelphia	L. Rauer	129	1,838	1,838	50,438	1	1	2^a	250
Germantown Dispensary and Hospital [1-3]	Philadelphia	F. B. Lynch, Jr.	206	3,032	2,425	99,376	1	2	4^p	150
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	A. Valdes-Dapena	113	3,790	3,790	185,445	1	2	3^p	100
Hahnemann Medical College and Hospital [3]	Philadelphia	C. G. Tedeschi	300	6,341	6,341	171,133	2	6	4^p	75
Hospital of the University of Pennsylvania [1-3]	Philadelphia	R. Horn-R. Norris	358	9,560	9,560	182,048	3	12	4^p	150
Hospital of the Woman's Med. Col. of Pennsylvania [1-3]	Philadelphia	M. A. Geiss	88	1,385	1,370	1,385	1	2	3^p	200
Jefferson Medical College Hospital [1-3]	Philadelphia	P. A. Herbut	305	8,363	8,363	298,816	4	10	4^p	150
Lankenau Hospital [1-3]	Philadelphia	C. E. Brown	123	12,700	12,700	128,095	1	2	4^p	100
Pennsylvania Hospital [1-3]	Philadelphia	A. R. Crane	196	7,036	17,915	351,571	4	4	4^p	100
Philadelphia General Hospital [1-3]	Philadelphia	J. H. Clark	905	5,184	6,312	498,657	2	5	4^p	113
Presbyterian Hospital [1-3]	Philadelphia	R. P. Custer	159	3,269	3,269	133,288	2	7	4^p	100
Temple University Hospital [1-3]	Philadelphia	E. E. Aegerter	294	7,669	29,462	496,159	2	8	4^p	...
Allegheny General Hospital [1]	Pittsburgh	R. C. Grauer	189	3,829	3,829	176,852	3	3	4^p	250
Children's Hospital [1-3]	Pittsburgh	G. H. Fetterman	180	647	641	110,385	1	2	1^p	200
Mercy Hospital [1-3]	Pittsburgh	H. H. Permar	196	6,016	5,715	125,914	2	8	4^p	175
Montefiore Hospital [1-3]	Pittsburgh	K. Yardumian	152	4,474	3,877	135,112	3	3	3^p	250
Presbyterian Hospital [1-3]	Pittsburgh	T. J. Moran	171	4,844	4,605	122,988	2	7	3	125
St. Francis General Hosp. and Rehabilitation Institute [1-3]	Pittsburgh	R. C. Hamilton	194	2,587	2,564	187,472	1	3	4^p	200
St. Margaret Memorial Hospital [1]	Pittsburgh	J. E. Kurtz	51	1,652	1,652	65,786	1	1	1^p	200
Shadyside Hospital	Pittsburgh	....	...	.....	.....	....	..	..	2^a	...
South Side Hospital	Pittsburgh	....	...	.....	.....	....	..	..	2^a	...
Western Pennsylvania Hospital [1-3]	Pittsburgh	R. G. McManus	219	6,473	6,113	147,002	4	4	3^p	225
Community General Hospital [1-3]	Reading, Pa.	H. S. Cook	112	2,802	2,809	60,874	1	1	1^a	300
Reading Hospital [1-3]	Reading, Pa.	W. P. Jennings	238	3,583	3,551	154,656	1	2	4^p	225
St. Joseph's Hospital [1-3]	Reading, Pa.	G. Des Jardins	188	2,885	2,037	129,675	1	4	4^p	250
Robert Packer Hospital [1-3]	Sayre, Pa.	C. De Wan	165	4,056	3,856	155,716	1	2	4^p	150
Scranton State Hospital [1-3]	Scranton, Pa.	G. A. Clark	112	2,712	1,979	104,590	1	1	2^p	266
Wilkes-Barre General Hospital [1-3]	Wilkes-Barre, Pa.	C. E. Rodriguez	123	3,118	3,118	117,880	1	2	2^a	225
Williamsport Hospital [1-3]	Williamsport, Pa.	M. G. Colvin	124	4,710	6,850	274,058	1	3	3^p	200
York Hospital	York, Pa.	J. M. Smith-L. C. Pusch	165	3,112	3,112	124,357	1	2	4^p	225
Rhode Island Hospital [1-3]	Providence, R. I.	H. Fanger	373	6,494	6,494	233,847	3	6	4^p	100
Roper Hospital [1-3]	Charleston, S. C.	K. M. Lynch	274	4,916	3,509	228,783	4	12	4^p	...
Greenville General Hospital [1-3]	Greenville, S. C.	E. A. Dreskin	228	5,998	5,944	170,144	1	3	3^p	125
Baroness Erlanger Hospital [1-3]	Chattanooga, Tenn.	J. W. Adams, Jr.	159	10,319	10,305	243,100	2	3	2^c	125
East Tennessee Baptist Hospital	Knoxville, Tenn.	J. B. Roberts	111	4,714	4,714	95,544	1	2	2^p	300
St. Mary's Memorial Hospital [1-3]	Knoxville, Tenn.	G. S. Mahon	96	4,406	4,400	79,433	1	3	2^p	300
Baptist Memorial Hospital [1-3]	Memphis, Tenn.	M. L. Trumbull	227	10,404	9,059	217,026	1	4	4^p	200
John Gaston Hospital [1-3]	Memphis, Tenn.	D. H. Sprunt	678	5,497	5,497	167,176	2	12	4^p	75
Methodist Hospital	Memphis, Tenn.	W. W. Tribby	84	8,195	7,127	165,626	3	3	2^p	100
St. Joseph Hospital [1-3]	Memphis, Tenn.	W. W. Hurteau	149	4,402	4,177	144,276	1	3	2^a	100
George W. Hubbard Hospital of Meharry Medical College [1-3]	Nashville, Tenn.	J. R. Cuff	153	1,565	1,565	1,565	2	2	2^a	125
Nashville General Hospital [1-3]	Nashville, Tenn.	W. A. De Monbreun	92	18,181	1,735	120,147	2	4	2^p	175
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	E. W. Goodpasture	193	2,737	2,683	200,000	2	5	3^a	50
Brackenridge Hospital [1-3]	Austin, Texas	S. W. Bohls	102	2,279	1,898	52,836	1	1	2^a	200
Baylor University Hospital [1-3]	Dallas, Texas	J. M. Hill	297	12,399	12,399	278,473	1	4	4^p	125
Methodist Hospital [1-3]	Dallas, Texas	A. B. Cairns	87	5,536	4,184	91,723	..	1	1^p	250
Parkland Memorial Hospital [1-3]	Dallas, Texas	E. E. Muirhead	402	3,109	8,890	364,394	..	3	4^p	50
St. Paul's Hospital [1-3]	Dallas, Texas	J. L. Goforth	288	9,913	7,328	202,450	4	12	4^p	125
Harris Hospital [1-3]	Fort Worth, Texas	C. Ashworth-C. Fitzwilliam	97	11,705	10,804	170,998	1	4	4^p	300
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	P. Brindley	374	5,520	5,231	215,147	2	8	4^p	...

Numerical and other references will be found on page 363.

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
NONFEDERAL										
Baylor University College of Medicine Affiliated Hospitals										
Jefferson Davis Hospital [1-3]	Houston, Texas	S. A. Wallace	479	3,902	3,800	320,416	1	5	4^p	...
Methodist Hospital [1-3]	Houston, Texas	S. A. Wallace	163	62,178	5,366	177,262	1	4	4^p	220
Veterans Admin. Hospital [3]	Houston, Texas	B. Halpert	352	2,316	2,276	399,508	1	4	4^p	...
Hermann Hospital [1]	Houston, Texas	W. G. Brown	261	8,016	8,008	284,829	1	4	4^p	100
St. Joseph's Hospital [1]	Houston, Texas	P. M. Marcuse	179	6,506	5,432	191,940	1	4	4^p	225
University of Texas M. D. Anderson Hospital and Tumor Institute [1-3]	Houston, Texas	W. O. Russell	72	3,312	3,312	79,474	2	14	4^p	150
Baptist Memorial Hospital [1-3]	San Antonio, Texas	A. O. Severance	118	4,832	4,553	160,922	1	4	4^p	200
Robert B. Green Memorial Hospital [1-3]	San Antonio, Texas	L. J. Manhoff, Jr.	170	3,416	1,534	92,087	2	2	3^p	150
Santa Rosa Hospital [3]	San Antonio, Texas	J. M. Moore	258	4,181	3,738	151,254	1	3	3^p	200
St. Benedict's Hospital [1-3]	Ogden, Utah	R. C. Ellis	79	.....	.....	53,482	1	1	1^p	200
Thomas D. Dee Memorial Hospital [1-3]	Ogden, Utah	E. D. Zeman	102	10,509	5,441	96,601	..	..	2^p	...
Dr. W. H. Groves Latter Day Saints Hospital [1-3]	Salt Lake City	J. H. Carlquist-F. Gunn	180	6,509	4,165	101,716	1	2	1^p	200
Holy Cross Hospital [1-3]	Salt Lake City	C. McNeil	99	4,409	3,194	91,807	1	2	1^p	175
Salt Lake County General Hospital [1-3]	Salt Lake City	R. H. Follis, Jr.	224	1,797	1,728	64,908	4	8	4^p	125
Bishop De Goesbriand Hospital [1-3]	Burlington, Vt.	E. Stark	63	1,738	1,738	42,987	1	2	1^p	100
Mary Fletcher Hospital [1-3]	Burlington, Vt.	E. Woll	156	2,682	1,833	65,322	2	6	2^p	100
University of Virginia Hospital [1-3]	Charlottesville, Va.	O. B. Bobbitt-J. R. Cash	268	10,339	.....	227,100	1	6	4^p	150
Memorial Hospital [1-3]	Danville, Va.	J. W. Hooker	112	3,389	3,389	69,490	1	3	3^p	...
Lynchburg General Hospital [1-3]	Lynchburg, Va.	S. M. Bouton, Jr.	62	2,141	1,459	45,065	..	..	1^p	150
Riverside Hospital [1-3]	Newport News, Va.	C. L. Sinclair	91	2,641	2,641	62,071	1	1	1^p	250
De Paul Hospital [1-3]	Norfolk, Va.	A. F. Strauss	203	6,324	6,194	177,912	1	2	4^p	200
Norfolk General Hospital [1-3]	Norfolk, Va.	A. J. Rawson	252	13,238	7,957	156,562	1	4	4^p	250
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va.	F. L. Apperly-H. G. Kupfer	454	9,320	9,320	515,267	..	8	4^p	75
Doctors Hospital [1-3]	Seattle	G. E. Tooley	144	4,811	3,564	61,930	1	1	2^a	125
King County Hospital Unit No. 1 (Harborview) [1]	Seattle	C. R. Jensen	615	31,151	2,828	252,799	1	1	4^p	110
Providence Hospital [1]	Seattle	D. G. Mason	211	5,225	3,997	120,506	1	2	2^a	200
Swedish Hospital [1-3]	Seattle	P. Lund	206	6,399	6,221	166,829	1	4	4^p	100
Deaconess Hospital	Spokane, Wash.	J. D. MacCarthy	184	6,141	5,034	98,359	1	4	3^a	250
St. Luke's Hospital [1-3]	Spokane, Wash.	O. O. Christianson	103	4,281	4,281	119,202	1	1	2^p	150
St. Joseph's Hospital [1-3]	Tacoma, Wash.	C. R. McColl-R. T. Vimont	132	4,267	4,134	77,766	2	4	2^a	200
Tacoma General Hospital [1-3]	Tacoma, Wash.	C. P. Larson	342	.....	.....	88,078	1	2	3^p	150
Charleston General Hospital [1-3]	Charleston, W. Va.	W. Putschar	96	2,254	2,254	66,879	1	1	4^p	175
St. Mary's Hospital	Clarksburg, W. Va.	H. Fischer	125	3,000	2,500	120,000	1	1	2^p	200
St. Mary's Hospital [1-3]	Huntington, W. Va.	S. Werthammer	134	4,266	4,266	176,995	..	..	2^a	150
Ohio Valley General Hospital [1-3]	Wheeling, W. Va.	H. G. Little	123	4,894	4,879	63,296	1	3	3^p	300
Madison General Hospital [1-3]	Madison, Wis.	L. E McGary	145	4,465	4,465	96,960	1	2	4^p	150
University Hospitals [1]	Madison, Wis.	M. D. Angevine	323	4,744	4,677	196,316	1	4	4^p	50
Columbia Hospital [1-3]	Milwaukee	G. Ritchie	123	2,457	4,317	51,761	1	4	4^p	195
Milwaukee County Hospital [1-3]	Milwaukee	J. Lunseth	504	3,578	3,473	311,441	2	8	4^p	209
Milwaukee Hospital [1-3]	Milwaukee	E. A. Birge	161	5,810	4,867	129,565	2	2	3^p	195
St. Joseph's Hospital [1-3]	Milwaukee	C. H. Altshuler	242	4,512	3,605	142,775	1	4	4^p	200
St. Luke's Hospital [1-3]	Milwaukee	B. E. Clarke	186	3,759	3,759	117,537	1	4	4^p	275
St. Mary's Hospital [1-3]	Milwaukee	S. B. Pessin	144	4,433	2,632	82,818	..	1	4^p	225
Gorgas Hospital	Ancon, C. Z.	F. E. Council	369	2,350	2,287	339,129	1	4	4^p	345
Queen's Hospital [1-3]	Honolulu, T. H.	W. H. Civin	166	5,268	4,599	144,670	1	4	4^p	125
Bayamon District Hospital [1-3]	Bayamon, P. R.	G. Polanco	336	.....	.....	....	1	1	2^c	250
San Juan City Hospital [1-3]	San Juan, P. R.	E. Koppisch	103	1,798	1,798	234,719	1	3	3^a	150

18. PEDIATRICS

The following services have been approved by the Council and the American Board of Pediatrics, through the Residency Review Committee for Pediatrics, as offering acceptable training in the specialty.

Hospitals, 255; Assistant Residencies and Residencies, 1,473

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL								
UNITED STATES ARMY								
Letterman Army Hospital [1]	San Francisco	W. M. Edwards	648	.....	2	3	2	...
Fitzsimons Army Hospital [1]	Denver	M. E. Steinheimer	679	11	..	..	2	...
Army Medical Center [1-3]	Washington, D. C.	O. C. Bruton	161	2	2	4	2	...
Brooke Army Hospital [1-3]	San Antonio, Texas	J. P. Fairchild	831	89	3	5	2	...
UNITED STATES NAVY								
U. S. Naval Hospital [1]	Oakland, Calif.	D. W. Sherwood	1,196	14	..	..	2	...
U. S. Naval Hospital [1-3]	Bethesda, Md.	T. E. Cone	561	13	2	4	2	...
U. S. Naval Hospital [1]	Chelsea, Mass.	M. Kurzrok	826	9	1	2	2	...
U. S. Naval Hospital [1]	Philadelphia	S. J. Winter	316	5	..	..	2	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE								
Freedmen's Hospital [1-3]	Washington, D. C.	R. B. Scott	521	10	3	6	2	...
NONFEDERAL								
Children's Hospital [1-3]	Birmingham, Ala.	J. W. Simpson	2,785	42	1	2	2	100
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	K. Hare	2,408	31	5	8	2	108
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	G. C. McCullough	1,247	4	2	4	1	225
City Hospital	Mobile, Ala.	J. Baumhauer	881	26	1	1	1	225
Maricopa County General Hospital [1-3]	Phoenix, Ariz.	C. A. Holmes	995	58	1	1	2	300
University Hospital [1-3]	Little Rock, Ark.	K. Dodd	2,565	91	4	6	2	145
Kern General Hospital [1]	Bakersfield, Calif.	J. Almklov	1,387	28	2	6	2	325
San Joaquin General Hospital [1-3]	French Camp, Calif.	W. T. Auld	786	29	1	1	1	235
General Hospital of Fresno County [1]	Fresno, Calif.	E. M. Moss	1,200	37	3	6	1	300
Seaside Memorial Hospital [1-3]	Long Beach, Calif.	S. S. Woolington	1,427	13	1	1	1	150
California Babies and Children's Hospital [1-3]	Los Angeles	T. Birnberg	344	10	1	2	2	150

Numerical and other references will be found on page 363.

18. PEDIATRICS—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Children's Hospital[1-3]	Los Angeles	M. J. Carson	8,451	211	10	22	2	40
Los Angeles County General Hospital[1]	Los Angeles	A. H. Hurd	4,836	72	5	11	2	200
Queen of Angeles Hospital[1-3]	Los Angeles	D. Goldstein	1,624	2	1	2	2	150
University of California Medical Center[1-3]	Los Angeles	J. M. Adams	46	..	4	10	2	189
White Memorial Hospital[1-3]	Los Angeles	J. A. Garrisi	658	13	2	4	2	146
Children's Hospital of the East Bay[1-3]	Oakland, Calif.	H. T. Norman	7,200	91	6	12	2	170
Highland-Alameda County Hospital[1-3]	Oakland, Calif.	M. H. Schwartz	1,146	21	3	4	2	195
Kaiser Foundation Hospital[1-3]	Oakland, Calif.	A. King	757	5	6	6	1	175
San Diego County General Hospital[1-3]	San Diego, Calif.	F. H. Fehlmann	972	..	1	2	1	150
Children's Hospital[1-3]	San Francisco	H. E. Thelander	2,385	9	3	5	2	125
Mount Zion Hospital[1-3]	San Francisco	S. J Robinson	1,247	2	..	1	1	...
St. Mary's Hospital[1-3]	San Francisco	R. Flood	1,956	5	1	2	2	150
Stanford University Hospitals								
San Francisco Hospital	San Francisco	E. H. Senz	.....	..	3	3	2	175
University Hospital[1-3]	San Francisco	J. A. Anderson	584	18	3	7	2	80
University of California Hospitals								
San Francisco Hospital[3]	San Francisco	M. B. Olney	692	25	2	2	2	175
University Hospital[1-3]	San Francisco	W. C. Deamer	597	83	3	7	2	87
Santa Clara County Hospital[1]	San Jose, Calif.	A. B. Williams	409	17	..	2	2	...
St. John's Hospital	Santa Monica, Calif.	A. B. Polson	1,627	..	1	1	2	175
Harbor General Hospital[1-3]	Torrance, Calif.	A. J. Moss	1,466	24	3	6	2	200
Children's Hospital[1-3]	Denver	F. H. Reynolds	5,852	85	6	10	2	150
University of Colorado Medical Center								
Colorado General Hospital[1-3]	Denver	R. H. Alway	484	35	8	14	2	150
Denver General Hospital[1-3]	Denver	M. Ginsburg	1,183	29	..	..	2	...
Hartford Hospital[1-3]	Hartford, Conn.	J. B. Griggs	945	15	1	2	2	50
St. Francis Hospital	Hartford, Conn.	T. F. Murphy	1,009	8	2	3	2	100
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	M. J E. Senn	4,948	99	6	10	2	50
Hospital of St. Raphael[3]	New Haven, Conn.	P. McAlenney	2,265	..	1	2	2	125
Waterbury Hospital[1]	Waterbury, Conn.	A. S. Brown	2,488	12	1	2	1	225
Delaware Hospital[1-3]	Wilmington, Del.	R. O. Y. Warren	1,021	38	2	4	2	180
Children's Hospital[1-3]	Washington, D. C.	W. F. Burdick	2,616	17	13	20	2	50
District of Columbia General Hospital[1-3]	Washington, D. C.	L. Hoeck	1,872	44	5	10	2	143
Georgetown University Hospital[3]	Washington, D. C.	F. G. Burke	981	14	2	5	2	20
Providence Hospital[1-3]	Washington, D. C.	G. Maksim	1,514	10	2	2	1	200
Duval Medical Center[1-3]	Jacksonville, Fla.	J. K. David, Jr.	895	22	2	3	1	150
St. Vincent's Hospital[1-3]	Jacksonville, Fla.	H. Carithers	2,382	19	1	2	1	135
Jackson Memorial Hospital[1-3]	Miami, Fla.	R. B. Lawson	1,055	41	4	7	2	75
Crawford W. Long Memorial Hospital[1-3]	Atlanta, Ga.	J. H. Patterson	1,246	33	5	6	2	110
Georgia Baptist Hospital[1-3]	Atlanta, Ga.	J. Yampolsky	2,826	9	2	4	2	290
Grady Memorial Hospital[1-3]	Atlanta, Ga.	R. W. Blumberg	967	41	4	10	2	20
Henrietta Egleston Hospital for Children[1-3]	Atlanta, Ga.	M. H. Roberts	1,123	15	2	3	2	150
University Hospital[1-3]	Augusta, Ga.	H. B. O'Rear	1,675	34	2	5	2	160
Children's Memorial Hospital[1-3]	Chicago	J. A. Bigler	5.260	86	11	15	2	75
Cook County Hospital[1-3]	Chicago	A. Levinson	7,345	411	15	15	2	...
Illinois Masonic Hospital[1-3]	Chicago	M. R. Jackson	1,743	1	2	2	1	115
Mercy Hospital[1-3]	Chicago	H. W. Elghammer	1,524	20	4	8	2	125
Michael Reese Hospital[1-3]	Chicago	B. Kagan	1,545	151	5	9	2	75
Mount Sinai Hospital[1-3]	Chicago	I. M. Levin	872	19	1	2	2	100
Presbyterian Hospital[1]	Chicago	B. M. Gasul	1,088	37	1	2	2	125
Provident Hospital[1-3]	Chicago	R. N. Jefferson	959	5	1	2	2	200
St. Joseph Hospital[1-3]	Chicago	H. Jacobs	1,293	7	1	1	1	200
St. Luke's Hospital[1-3]	Chicago	A. D. Biggs	1,348	11	1	2	2	50
University of Chicago Clinics[1-3]	Chicago	F. H. Wright	1,081	35	6	14	2	175
University of Illinois Research and Educational Hospitals[1]	Chicago	H. N. Sanford	538	46	4	0	2	...
Evanston Hospital[1-3]	Evanston, Ill.	A. L. Newcomb	1,458	10	1	1	1	...
St. Francis Hospital[1-3]	Evanston, Ill.	N. G. Shaw	855	15	1	2	1	175
Little Company of Mary Hospital[1-3]	Evergreen Park, Ill.	E. G. Lawler	3,664	17	2	4	2	150
West Suburban Hospital[3]	Oak Park, Ill.	C. D. Butler	2,099	15	1	1	1	225
St. Francis Hospital[1-3]	Peoria, Ill.	J. R. Vonachen	1,546	83	1	2	2	...
Indianapolis General Hospital[1-3]	Indianapolis	I. Rosenbaum	614	11	2	4	2	165
Indiana University Medical Center[1]	Indianapolis	L. T. Meikle	1,968	102	5	11	2	165
St. Vincent's Hospital[1-3]	Indianapolis	W. Brown	796	30	2	3	1	275
Raymond Blank Memorial Hospital for Children[1-3]	Des Moines, Iowa	L. F. Hill	4,057	9	5	8	2	150
University Hospitals[1-3]	Iowa City	C. D. May	1,457	57	4	8	2	118
University of Kansas Medical Center[1-3]	Kansas City, Kan.	H. Miller	1,254	60	4	8	2	125
St. Joseph Infirmary[1-3]	Louisville, Ky.	H. Andrews	2,647	22	2	4	2	185
University of Louisville Hospitals								
Children's Hospital[1-3]	Louisville, Ky.	A. J. Steigman	3,054	91	4	13	2	83.35
Louisville General Hospital[1-3]	Louisville, Ky.	A. J. Steigman	743	16	11	24	2	83
Charity Hospital of Louisiana								
Independent Unit	New Orleans	W. C. Rivenbark	942	24	3	6	2	100
Louisiana State University Unit[1]	New Orleans	E. Kaplan	1,681	45	7	14	2	100
Tulane University Unit[1]	New Orleans	R. V. Platou	1,823	41	7	14	2	100
Hotel Dieu-Sisters Hospital[1]	New Orleans	R. Aleman	2,230	9	2	4	1	225
Southern Baptist Hospital[1]	New Orleans	J. L. Treadway, Jr.	2,020	28	1	2	1	225
Confederate Memorial Medical Center[1]	Shreveport, La.	C. H. Webb	2,498	30	2	4	2	125
Central Maine General Hospital[1]	Lewiston, Maine	H. C. Thacher	1,141	12	..	1	1	150
Baltimore City Hospitals[1-3]	Baltimore	H. E. Harrison	983	61	4	6	2	75
Johns Hopkins Hospital[1-3]	Baltimore	L. Wilkins	1,858	109	..	11	2	20
Mercy Hospital[1-3]	Baltimore	F. B. Smith	532	4	1	2	2	275
Sinai Hospital[1-3]	Baltimore	H. H. Gordon	802	17	3	7	2	110
Union Memorial Hospital[1-3]	Baltimore	C. O'Donovan	704	9	2	3	1	115
University Hospital[1-3]	Baltimore	J. E. Bradley	865	37	3	8	2	50
Boston City Hospital[1-3]	Boston	E. Friedman	4,617	68	9	12	2	112
Boston Floating Hospital	Boston	J. M. Baty	2,018	52	2	9	2	50
Children's Medical Center[1-3]	Boston	C. A. Janeway	3,069	..	..	23	2	50
Massachusetts General Hospital[1-3]	Boston	A. M. Butler	1,092	23	5	6	2	66.67
Worcester City Hospital[3]	[illegible]	J. J. Cohen	976	6	2	2	2	215
University Hospital[1-3]	[illegible]	J. L. Wilson	1,937	103	10	23	2	145
Children's Hospital[1-3]	Detroit	P. V. Woolley, Jr.	6,123	202	10	20	2	150
Harper Hospital[1-3]	Detroit	E. E. Martmer	1,938	27	2	4	2	225
Henry Ford Hospital[1-3]	Detroit	J. A. Johnston	1,621	18	5	11	2	225
Hurley Hospital[1-3]	Flint, Mich.	L. Jones	3,664	28	1	2	2	325
St. Mary's Hospital[1-3]	Grand Rapids, Mich.	C. Booher	2,168	14	1	2	1	200
Saginaw General Hospital[1-3]	Saginaw, Mich.	R. M. Heavenrich	1,826	45	1	2	2	325
Minneapolis General Hospital[1-3]	Minneapolis	R. B. Raile	1,325	20	3	4	2	182
Northwestern Hospital[1-3]	Minneapolis	N. Beach	1,622	12	1	2	1	200
University of Minnesota Hospitals[1-3]	Minneapolis	I.	1,924	90	9	15	2	162
Mayo Foundation[1-3]	Rochester, Minn.	R.	3,397	9	10	26	2	150
Children's Mercy Hospital[1-3]	Kansas City, Mo.	J.	2,135	55	6	6		125

Numerical and other references will be found on page 363.

18. PEDIATRICS—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Kansas City General Hospital No. 1 [1-3]	Kansas City, Mo.	G. V. Herrman	698	11	1	2	2	150
Homer G. Phillips Hospital [1-3]	St. Louis	P. J. White	2,103	82	6	14	2	190
Jewish Hospital [1-3]	St. Louis	M. Deutch	1,046	9	..	1	1	100
St. Louis Children's Hospital [1-3]	St. Louis	A. F. Hartmann	3,873	104	6	22	2	25
St. Louis City Hospital [1-3]	St. Louis	V. Peden	2,055	34	3	7	2	190
St. Mary's Group of Hospitals [1-3]	St. Louis	P. G. Danis	2,262	87	4	8	2	100
Creighton Memorial-St. Joseph's Contagious Division of County Omaha Children's Hospital Riverview Home St. Joseph's Orphanage	Omaha	J. H. Murphy	1,923	14	2	4	2	175
University of Nebraska Hospital [1-3] Children's Memorial Hospital	Omaha	H. Jahr	516	14	1	2	2	...
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	C. C. Stewart, III	877	21	2	2	1	188
Cooper Hospital [1-3]	Camden, N.J.	V. Del Duca	855	11	1	1	1	83
Jersey City Medical Center [1-3]	Jersey City, N. J.	C. P. De Fuccio	1,999	5	3	6	2	92
Babies Hospital-Coit Memorial [1-3]	Newark, N. J.	M. Gregory	3,870	37	..	3	2	150
Newark Beth Israel Hospital [1-3]	Newark, N. J.	A. Heyman	2,148	8	1	2	2	125
St. Michael's Hospital [1-3]	Newark, N. J.	H. A. Murray	3,041	17	4	7	2	125
St. Francis Hospital [1-3]	Trenton, N. J.	H. Davis	3,668	14	1	1	2	210
Albany Hospital [1-3]	Albany, N. Y.	P. Patterson	823	17	2	4	2	...
St. Peter's Hospital [3]	Albany, N. Y.	H. F. Leahy	1,480	5	1	2	1	225
Beth-El Hospital [1-3]	Brooklyn	B. Schick	282	19	3	4	2	125
Brooklyn Hospital [1-3]	Brooklyn	T. M. Lamb	484	..	1	3	2	...
Coney Island Hospital [1-3]	Brooklyn	S. Nussbaum	718	9	1	2	2	...
Cumberland Hospital [1-3]	Brooklyn	J. A. Monfort	1,026	15	3	4	2	...
Greenpoint Hospital [1-3]	Brooklyn	I. Schiff	632	40	2	3	1	105
Jewish Hospital [1-3]	Brooklyn	B. Kramer	1,227	23	5	10	2	75
Kings County Hospital University Service [1-3]	Brooklyn	R. L. Day	4,261	125	..	6	2	104
Long Island College Hospital [1-3]	Brooklyn	C. A. Weymuller	473	15	2	3	2	75
Maimonides Hospital [1-3]	Brooklyn	M. Palinsky-J. Rosenblum	495	9	..	3	2	75
Methodist Hospital [1-3]	Brooklyn	W. R. Coles	1,001	24	1	2	1	175
Norwegian Lutheran Deaconesses' Home and Hospital [1-3]	Brooklyn	J. A. Monfort	698	17	1	2	2	160
St. Catherine's Hospital [1-3]	Brooklyn	P. Lombard	538	4	1	2	2	125
St. John's Episcopal Hospital [1-3]	Brooklyn	B. H. Shulman	916	10	1	2	1	175
Wyckoff Heights Hospital [1-3]	Brooklyn	V. Larkin	815	2	3	6	1	100
Children's Hospital [1-3]	Buffalo	M. I. Rubin	2,979	103	..	15	2	125
Edward J. Meyer Memorial Hospital [1]	Buffalo	F. J. Gustina	1,950	25	2	3	2	179
Mary Imogene Bassett Hospital [1-3]	[illegible] Y.	T. C. Goodwin	356	9	1	1	1	145
Flushing Hospital and Dispensary [1-3]	[illegible] Y.	H. T. Vogel	4,666	51	1	2	1	150
Meadowbrook Hospital [1-3]	Hempstead, N. Y.	E. A. Stanchi	2,527	57	3	6	2	225
Mary Immaculate Hospital [1-3]	Jamaica, N. Y.	A. Trivilino	2,834	22	1	1	1	120
Queens Hospital Center [1-3]	Jamaica, N. Y.	H. A. Reisman	1,008	37	3	6	2	105
Bellevue Medical Center Division III—New York Univ. College of Medicine [1-3]	New York City	L. E. Holt, Jr.	1,328	84	10	17	2	71
Bronx Hospital [1-3]	New York City	J. H. Lapin	713	6	1	2	2	75
Flower and Fifth Avenue Hospitals [1-3]	New York City	L. B. Slobody	1,133	12	4	5	2	...
Fordham Hospital [1-3]	New York City	J. Golomb	632	14	2	3	2	105
Harlem Hospital [1-3]	New York City	H. J. Cohen	783	38	2	4	2	...
Lenox Hill Hospital [1-3]	New York City	A. F. Anderson	610	12	1	2	2	180
Lincoln Hospital [1-3]	New York City	H. S. Altman	1,457	20	2	5	2	71
Metropolitan Hospital [1-3]	New York City	L. B. Slobody	1,349	23	5	8	2	104
Misercordia Hospital [1-3]	New York City	F. Castrovinci	736	3	1	2	1	100
Morrisania City Hospital [1-3]	New York City	H. D. Pasachoff	737	32	2	4	2	105
Mount Sinai Hospital [1-3]	New York City	H. L. Hodes	2,279	84	3	9	2	50
New York City Hospital [1-3]	New York City	E. E. Amerman	1,473	16	2	3	2	104
New York Hospital [1-3]	New York City	S. Z. Levine	1,549	90	9	17	2	18
New York Infirmary [2-3]	New York City	B. Worcester	75	..	1	1	1	150
New York University-Bellevue Medical Center University Hospital [1-3]	New York City	A. De Sanctis	543	8	3	7	2	85
Presbyterian Hospital [1]	New York City	R. McIntosh	4,696	202	7	18	2	208
Roosevelt Hospital [1-3]	New York City	E. N. Joyner, III	540	5	2	4	2	116
St. Clare's Hospital [1-3]	New York City	C. H. O'Regan	692	22	1	2	2	125
St. Luke's Hospital [1-3]	New York City	F. C. Hunt	752	7	2	4	2	75
St. Vincent's Hospital [1-3]	New York City	A. J. Vignec	3,471	53	2	5	2	100
Sydenham Hospital [2-3]	New York City	E. Schiff	517	..	1	1	1	105
Genesee Hospital [3]	Rochester, N. Y.	J. Glaser	936	32	1	2	2	75
Rochester General Hospital [1-3]	Rochester, N. Y.	F. W. Bush	659	7	1	1	1	100
St. Mary's Hospital [1-3]	Rochester, N. Y.	H. Waffle	2,770	34	1	2	2	200
Strong Memorial-Rochester Municipal Hospital [1-3]	Rochester, N. Y.	W. L. Bradford	14,420	54	4	12	2	...
St. Vincent's Hospital [1-3]	Staten Island, N. Y.	G. W. McCormick	1,367	6	1	1	1	150
Sea View Hospital [1-3]	Staten Island, N. Y.	B. Ratner	557	..	5	5	1	157
St. Joseph's Hospital [1-3]	Syracuse, N. Y.	G. Murdock	2,527	11	2	2	1	191
State University of New York Medical Center [1-3]	Syracuse, N. Y.	J. B. Richmond	7,100	56	7	11	2	192
Grasslands Hospital [1-3]	Valhalla, N. Y.	D. A. Wilcox	485	12	1	3	2	175
North Carolina Memorial Hospital [1]	Chapel Hill, N. C.	E. C. Curnen	1,345	40	3	7	2	145
Charlotte Memorial Hospital [1]	Charlotte, N. C.	E. K. McLean	510	7	1	2	2	250
Duke University Hospital [1-3]	Durham, N. C.	W. C. Davison	1,111	45	6	8	2	42
Watts Hospital [1-3]	Durham, N. C.	A. H. London	635	3	..	1	2	100
Rex Hospital [1]	Raleigh, N. C.	C. R. Bugg	1,268	10	1	1	1	200
Babies Hospital [1-3]	Wilmington, N. C.	J. B. Sidbury, Sr.	121	6	2	2	2	200
City Memorial Hospital [1-3]	Winston-Salem, N. C.	K. Anderson	1,532	6	1	1	1	...
North Carolina Baptist Hospitals [1-3]	Winston-Salem, N. C.	W. M. Kelsey	1,341	36	2	8	2	125
Children's Hospital [1-3]	Akron, Ohio	J. G. Kramer	3,265	52	9	11	2	250
University of Cincinnati Hospitals								
Children's Hospital [1]	Cincinnati	A. A. Weech	2,997	66	10	20	2	45
Cincinnati General Hospital [1-3]	Cincinnati	A. A. Weech	875	53	..	..	2	...
Good Samaritan Hospital [1-3]	Cincinnati	L. K. Felter	6,814	29	1	2	2	175
City Hospital [1-3]	Cleveland	F. C. Robbins	1,594	59	4	5	2	150
Cleveland Clinic Hospital [1-3]	Cleveland	R. D. Mercer	630	10	1	3	2	175
St. Luke's Hospital [1]	Cleveland	R. G. Hodges	972	16	1	2	2	120
University Hospitals [1-3]	Cleveland	W. Wallace	2,929	106	8	14	2	125
Children's Hospital [1]	Columbus, Ohio	E. H. Baxter	3,561	96	8	19	2	150
Mercy Hospital [1-3]	Toledo, Ohio	L. I. Clark	307	43	1	2	1	250
University Hospitals [1-3]	Oklahoma City	C. H. Hall	1,322	79	8	6	2	85
Hillcrest Medical Center [1]	Tulsa, Okla.	R. M. Wadsworth	2,982	17	1	2	2	...
St. John's Hospital [1-3]	Tulsa, Okla.	K. C. Reese	3,908	11	1	1	2	...
Univ. of Oregon Med. School Hospitals and Clinics [1-3]	Portland, Ore.	A. J. Hill, Jr.	767	34	8	6	2	85

Numerical and other references will be found on page 363.

18. PEDIATRICS—*Continued*

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered ^{8}	Total Residencies Offered ^{8}	Length of Approved Program (Years)	Beginning Stipend (Month)
Abington Memorial Hospital $^{1-3}$	Abington, Pa.	T. S. Wilder	429	6	2	2	1	100
George F. Geisinger Memorial Hospital $^{1-3}$	Danville, Pa.	E. F. Rabe	693	16	1	2	2	125
Harrisburg Polyclinic Hospital ^{1}	Harrisburg, Pa.	M. Ames	1,819	13	1	2	2	250
Albert Einstein Medical Center			.....	..	..	..	2	...
Northern Division $^{1-3}$	Philadelphia	A. M. Dannenberg	1,317	5	2	4	..	150
Southern Division $^{1-3}$	Philadelphia	M. Malen-P. Morris	254	3	1	1	..	150
Children's Hospital $^{1-3}$	Philadelphia	J. Stokes, Jr.	5,722	50	9	21	2	100
Germantown Dispensary and Hospital $^{1-3}$	Philadelphia	P. S. Barba	1,388	29	2	2	1	150
Graduate Hospital of the University of Pennsylvania $^{1-3}$	Philadelphia	J. Ritter	473	5	2	2	1	...
Hahnemann Medical College and Hospital ^{3}	Philadelphia	C. C. Fischer	3,661	52	4	6	2	...
Hospital of the University of Pennsylvania $^{1-3}$	Philadelphia	P. Gyorgy	519	33	2	7	2	...
Hospital of the Woman's Medical College of Pennsylvania $^{1-3}$	Philadelphia	J. Crump	729	28	1	2	2	110
Jefferson Medical College Hospital $^{1-3}$	Philadelphia	C. F. McKhann	788	13	4	5	2	...
Philadelphia General Hospital $^{1-3}$	Philadelphia	N. H. Einhorn	1,735	74	3	6	2	113
St. Luke's and Children's Medical Center $^{1-3}$	Philadelphia	H. A. Agerty	656	12	2	2	1	100
Temple University Hospitals								
St. Christopher's Hospital for Children $^{1-3}$	Philadelphia	W. E. Nelson	3,746	..	11	27	2	50
Temple University Hospital $^{1-3}$	Philadelphia	W. E. Nelson	.....	..	..	..	..	...
Allegheny General Hospital ^{1}	Pittsburgh	T. O. Elterich	580	23	2	2	1	200
Children's Hospital $^{1-3}$	Pittsburgh	E. R. McCluskey	2,279	102	10	21	2	125
Western Pennsylvania Hospital $^{1-3}$	Pittsburgh	H. C. Flood-F. A. Miller	1,953	10	1	1	1	225
Robert Packer Hospital $^{1-3}$	Sayre, Pa.	D. Motsay	2,041	9	1	2	2	150
Charles V. Chapin Hospital $^{1-3}$	Providence, R. I.	H. G. Calder	1,308	4	4	4	1	150
Rhode Island Hospital $^{1-3}$	Providence, R. I.	R. M. Lord	1,341	15	2	4	2	100
Roper Hospital $^{1-3}$	Charleston, S. C.	M. W. Beach	1,488	28	1	4	2	...
Columbia Hospital $^{1-3}$	Columbia, S. C.	H. W. Moore	4,115	28	1	2	2	175
T. C. Thompson Children's Hospital $^{1-3}$	Chattanooga, Tenn.	S. Smith	3,222	20	3	4	1	150
John Gaston Hospital $^{1-3}$	Memphis, Tenn.	F. T. Mitchell	2,181	58	5	12	2	35
Le Bonheur Childrens Hospital $^{1-3}$	Memphis, Tenn.	F. T. Mitchell	3,720	28	2	3	2	100
St. Joseph Hospital $^{1-3}$	Memphis, Tenn.	H. J. Jacobson	2,878	18	1	2	2	100
Baptist Hospital $^{1-3}$	Nashville, Tenn.	W. O. Vaughan	704	4	1	2	2	175
George W. Hubbard Hospital of Meharry Medical College $^{1-3}$	Nashville, Tenn.	E. P. Crump	773	42	2	6	2	125
Vanderbilt University Hospital $^{1-3}$	Nashville, Tenn.	A. Christie	1,021	30	4	6	2	50
Children's Medical Center $^{1-2}$	Dallas, Texas	E. Pratt	3,861	47	6	14	2	50
St. Paul's Hospital $^{1-3}$	Dallas, Texas	A. L. Alfieri	2,390	13	3	5	1	125
University of Texas Medical Branch Hospitals $^{1-3}$	Galveston, Texas	A. E. Hansen	1,182	101	6	12	2	...
Baylor University College of Medicine Affiliated Hospitals								
Jefferson Davis Hospital $^{1-3}$	Houston, Texas	R. J. Blattner	4,928	131	6	10	2	...
Methodist Hospital $^{1-3}$	Houston, Texas		.....	..	..	..	2	...
Hermann Hospital ^{1}	Houston, Texas	R. J. Blattner	845	28	4	8	2	100
St. Joseph's Hospital ^{1}	Houston, Texas	J. R. Hild	4,555	23	1	2	2	200
Santa Rosa Hospital ^{3}	San Antonio, Texas	S. R. Kaliski	2,074	45	1	2	1	200
Salt Lake County General Hospital $^{1-3}$	Salt Lake City	J. F. Bosma	673	28	4	7	2	150
University of Vermont Medical Center								
Bishop De Goesbriand Hospital $^{1-3}$	Burlington, Vt.	R. Corley	595	4	1	2	2	100
Mary Fletcher Hospit[illegible]	Burlington, Vt.	R. J. McKay, Jr.	615	13	2	3	2	75
University of Virginia	Va.	W. W. Waddell, Jr.	1,061	33	4	5	2	50
Medical College of Virg[illegible]	Va.	L. E. Sutton, Jr.	1,971	41	8	14	2	50
Children's Orthopedic Hospital $^{1-3}$	Seattle	A. Rembe	.....	..	2	4	2	160
King County Hospital Unit No. 1 (Harborview) ^{1}	Seattle	W. B. Seelye	930	9	2	3	2	110
Memorial Hospital $^{1-3}$	Charleston, W. Va.	J. Basman	967	13	1	1	2	225
University Hospitals ^{1}	Madison, Wis.	J. E. Gonce, Jr.	1,001	65	2	5	2	50
Milwaukee Children's Hospital ^{1}	Milwaukee	G. H. Wegmann	3,453	48	5	9	2	150
Milwaukee County Hospital $^{1-3}$	Milwaukee	W. S. Polacheck	3,053	14	2	4	2	209
Kauikeolani Children's Hospital $^{1-3}$	Honolulu, T. H.	M. Hasegawa	3,585	37	4	4	1	200
Bayamon District Hospital $^{1-3}$	Bayamon, P. R.	I. Ortiz de Freeman	1,631	105	1	2	2	150
San Juan City Hospital $^{1-3}$	San Juan, P. R.	A. Ortiz	1,309	41	2	6	2	150

19. PHYSICAL MEDICINE AND REHABILITATION

The following services have been approved by the Council and the American Board of Physical Medicine, through the Residency Review Committee for Physical Medicine, as offering acceptable training in the specialty.

Hospitals, 53; Assistant Residencies and Residencies, 177

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Number of Treatments	First Year Residencies Offered ^{8}	Total Residencies Offered ^{8}	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital ^{1}	San Francisco	R. C. Psaki	1,655	105,215	1	3	3	...
Fitzsimons Army Hospital ^{1}	Denver	A. F. Mastellone	16,823	256,589	..	..	3	...
Army Medical Center $^{1-3}$	Washington, D. C.	H. B. Luscombe	9,266	151,228	2	6	3	...
VETERANS ADMINISTRATION								
Veterans Admin. Hospital $^{1-3}$	Denver	C. C. Hoffman	3,602	379,091	1	1	3	...
Veterans Admin. Research Hospital ^{1}	Chicago	(See Northwestern University Medical Center)						
Veterans Admin. Hospital $^{1-3}$	Fort Howard, Md.	L. N. Rudin	1,368	58,492	1	1	3	...
Veterans Admin. Hospital	East Orange, N. J.		.....	....	..	..	1	...
Veterans Admin. Hospital $^{1-3}$	New York City (Bronx)	A. S. Abramson	4,666	353,168	1	2	3	...
Veterans Admin. Hospital $^{1-3}$	Cleveland	H. T. Zankel	1,600	30,000	2	6	3	...
Veterans Admin. Hospital $^{1-3}$	Dayton, Ohio		.....	....	..	..	1	...
Veterans Admin. Hospital $^{1-3}$	Portland, Ore.	E. W. Fowlks	3,252	143,849	1	3	3	...
Veterans Admin. Hospital $^{1-3}$	Philadelphia	R. A. Schlesinger	1,420	23,298	1	2	2	...
Veterans Admin. Hospital ^{1}	Pittsburgh	S. Machover	1,627	65,656	..	2	2	...
Veterans Admin. Hospital $^{1-3}$	Memphis, Tenn.	F. I. Mahoney	2,526	166,469	1	1	3	...
Veterans Admin. Hospital $^{1-3}$	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)						
Veterans Admin. Hospital $^{1-3}$	Richmond, Va.	A. R. Dawson	5,000	226,404	1	3	3	...
Veterans Admin. Hospital $^{1-3}$	Milwaukee (Wood)	R. Plaskoski	8,641	232,656	1	2	3	...

Numerical and other references will be found on page 363.

19. PHYSICAL MEDICINE AND REHABILITATION — Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Number of Treatments	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Los Angeles County General Hospital [1]	Los Angeles	E. Austin	25,636	......	..	2	3	200
White Memorial Hospital [1-3]	Los Angeles	F. B. Moor	1,700	24,662	1	3	3	146
University of Colorado Medical Center								
Colorado General Hospital [1-3]	Denver	H. Dinken	423	34,164	1	3	3	150
Grace-New Haven Community Hospital [1-1]	New Haven, Conn.	T. F. Hines	1,319	25,990	1	3	3	50
State of Connecticut Veterans' Home and Hospital [1-3]	Rocky Hill, Conn.	T. F. Hines	505	51,380	1	3	3	335
District of Columbia General Hospital [1-3]	Washington, D. C.	J. Buchanan	2,535	34,127	1	3	3	143
Georgetown University Hospital [3]	Washington, D.C.	....	.....	......	..	..	1	...
George Washington University Hospital [1-3]	Washington, D. C.	C. S. Wise	14,471	20,165	1	3	3	150
Georgia Warm Spring Foundation [1-3]— Emory University	Warm Springs, Ga.	R. L. Bennett	509	112,221	6	16	3	200
Northwestern University Medical Center [1-3]	Chicago	B. Boynton	3,505	......	1	1	3	...
Veterans Admin. Research Hospital [1]	Chicago	L. B. Newman	347	12,980	1	1	3	...
University of Kansas Medical Center [1-3]	Kansas City, Kan.	D. L. Rose	11,545	52,834	1	3	2	125
Massachusetts General Hospital [1-3]	Boston	A. L. Watkins	1,114	16,511	3	3	3	...
University Hospital [1-3]	Ann Arbor, Mich.	J. W. Rae, Jr.	2,875	39,505	2	6	3	145
University of Minnesota Hospitals [1-3]	Minneapolis	F. J. Kottke	1,737	38,581	3	7	3	162
Mayo Foundation [1-3]	Rochester, Minn.	F. H. Krusen	17,787	105,221	3	4	3	150
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	T. P. Anderson	1,392	22,599	1	2	2	188
Jewish Chronic Disease Hospital [1-3]	Brooklyn	....	2,334	58,593	..	..	3	...
Bellevue Medical Center								
Division III—New York University College of Medicine [1-3]	New York City	H. A. Rusk	1,507	115,030	3	9	3	105
Bird S. Coler Memorial Hospital and Home [1-3]	New York City	J. S Tobis	477	45,692	8	15	3	...
Goldwater Memorial Hospital [1-3]	New York City	M. Dacso	947	73,160	2	4	3	104
Hospital for Joint Diseases [1-3]	New York City	J. Weiss-H J. Behrend	2,552	77,534	1	1	1	80
Hospital for Special Surgery [1-3]	New York City	K. G. Hansson	2,650	37,373	1	1	1	160
Metropolitan Hospital [1-3]	New York City	J. Tobis	722	42,241	2	4	3	104
Montefiore Hospital [1-3]	New York City	K. Harpuder	1,059	36,117	1	2	2	75
Mount Sinai Hospital [1-3]	New York City	W. Bierman	9,317	37,396	..	1	3	50
New York City Hospital [1-3]	New York City	F. K. Safford, Jr.	1,700	13,281	1	1	1	157
Presbyterian Hospital [1]	New York City	R. C. Darling	6,837	201,216	1	5	3	267
St. Barnabas Hospital for Chronic Diseases [1-3]	New York City	R. A. Muller	.....	81,112	1	2	1	200
St. Luke's Hospital [1-3]	New York City	R. Muller	868	146,454	2	2	2	75
City Hospital [1-3]	Cleveland	M. Peszczynski	12,979	22,648	..	..	1	...
Cleveland Clinic Hospital [1-3]	Cleveland	W. J. Zeiter	3,876	21,198	1	3	3	175
Ohio State University Hospitals								
University Hospital [1-3]	Columbus, Ohio	R. E. Worden	17,675	43,177	3	9	3	150
Hospital of the University of Pennsylvania [1-3]	Philadelphia	W. Erdman	1,787	35,496	2	6	3	...
Philadelphia General Hospital [1-3]	Philadelphia	A. A. Martucci	8,955	111,496	1	2	1	113
Gonzales Warm Springs Foundation Hospital [1]	Gonzales, Texas	O. Von Werssowetz	1,224	82,382	..	4	1	...
Baylor University College of Medicine Affiliated Hospitals		....	.....	......	..	..	3	...
Veterans Admin. Hospital [1-3]	Houston, Texas	L. A. Leavitt	8,514	126,787	1	3	..	...
Medical College of Virginia-Hospital Division [1-3]	Richmond, Va.	H. W. Park	55,561	82,290	2	6	3	50

20. PLASTIC SURGERY

The following services have been approved by the Council and the American Board of Plastic Surgery, through the Residency Review Committee for Plastic Surgery, as offering acceptable training in the specialty.

Hospitals, 33; Assistant Residencies and Residencies, 81

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Brooke Army Hospital [1-3]	San Antonio, Texas	H. B. Jennings, Jr.	357	..	2	2	..	...
VETERANS ADMINISTRATION								
Veterans Admin. Hospital [1-3]	Los Angeles	G. Webster	291	..	..	1	1	...
Veterans Admin. Hospital [1]	Hines, Ill.	(See University of Illinois Affiliated Hospitals)						
Veterans Admin. Hospital [1-3]	New York City (Bronx)	H. Conway	210	1	2	5	2	...
Veterans Admin. Hospital [1-3]	Durham, N. C.	(See Duke University Affiliated Hospitals)						
Veterans Admin. Hospital [1]	White River Junction, Vt.	(See Dartmouth Affiliated Hospitals)						

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Franklin Hospital [1-3]	San Francisco	H. M. Blackfield	263	..	1	2	2	116
St. Francis Memorial Hospital [1-3]	San Francisco	G. W. Pierce	890	..	1	2	2	250
University of Illinois Affiliated Hospitals		P. W. Greeley	...	..	..	..	3	...
Illinois Research and Educational Hospitals	Chicago	....	...	..	..	1	..	...
St. Luke's Hospital [1-3]	Chicago	....	188	3	1	1	..	50
Veterans Admin. Hospital [1]	Hines, Ill.	....	151	..	..	1	..	...
Indiana University Medical Center [1]	Indianapolis	H. M. Trusler	372	4	..	1	2	215
University of Kansas Medical Center [1-3]	Kansas City, Kan.	D. Robinson	509	5	1	2	2	125
Johns Hopkins Hospital [1-3]	Baltimore	M. T. Edgerton	854	6	..	3	2	20
Henry Ford Hospital [1-3]	Detroit	R. H. Clifford	...	..	1	2	2	225
Mayo Foundation [1-3]	Rochester, Minn.	F. A. Figi	3,884	1	4	12	3	150
Barnes Hospital [1-3]	St. Louis	J. B. Brown	905	1	..	4	2	50
Dartmouth Affiliated Hospitals		R. O. Tanzer	274	3	1	2	2	243
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	....	...	..	..	..	..	...
Veterans Admin. Hospital [1]	White River Junction, Vt.	....	...	..	..	..	..	...
Hospital of St. Barnabas and for Women and Children [1-3]	Newark, N. J.	L. A. Peer	784	..	..	2	2	200
Albany Hospital [1-3]	Albany, N. Y.	B. Macomber	440	..	1	2	2	...
Kings County Hospital County Division	Brooklyn	G. O'Brien	...	..	1	2	2	...
Beth Israel Hospital [1-3]	New York City	A. J. Barsky	297	..	1	1	2	135
New York Hospital [1-3]	New York City	H. Conway	526	..	1	2	..	85
Presbyterian Hospital [1-3]	New York City	T. W. Stevenson, Jr.	743	..	2	4	2	267
Strong Memorial-Rochester Municipal Hospital [1-3]	Rochester, N. Y.	R. McCormack	2,840	..	1	2	2	...

Numerical and other references will be found on page 363.

PLASTIC SURGERY — Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
State University of New York Medical Center Hospitals [1-3]	Syracuse, N. Y.	L. Sutton	335	1	..	1	2	192
Duke University Affiliated Hospitals			...	..	..	..	3	...
University Hospital [1-3]	Durham, N. C.	K. L. Pickrell	1,130	6	1	2	..	67
Veterans Admin Hospital [1-3]	Durham, N. C.	K. Pickrell	265	1	..	2	..	...
Ohio State University Medical Center University Hospital [1-3]	Columbus, Ohio	B. C. Martin	...	..	..	4	2	175
University Hospitals [1-3]	Oklahoma City	J. F. Burton	232	..	1	1	1	65
Allentown Hospital [1-3]	Allentown, Pa.	K. M. Marcks	675	1	1	1	2	225
Pittsburgh Medical Center [1-3]	Pittsburgh	S. M. Dupertius	480	..	..	4	2	125
Baylor University Hospital [1-3]	Dallas, Texas	J. T. Mills	699	1	1	1	2	125
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	T. G. Blocker, Jr.	1,060	17	2	5	8	...
Baylor University College of Medicine Affiliated Hospitals Jefferson Davis Hospital [1-3]	Houston, Texas	S. B. Hardy	319	2	1	2	2	...
University Hospitals [1]	Madison, Wis.	W. B. Slaughter	418	2	1	2	2	50

21. PREVENTIVE MEDICINE AND PUBLIC HEALTH

The following programs have been approved for two years of training by the Council and the American Board of Preventive Medicine, through the Residency Review Committee for Preventive Medicine.

AVIATION MEDICINE

School	Location	Director	Stipend (Month)
School of Aviation Medicine	Randolph Field, Texas	Brig. Gen. E. H. Kendricks	....

PREVENTIVE MEDICINE AND PUBLIC HEALTH

Department of Health	Location	Director	Local Areas	Population	Stipend (Month)
State of California	Berkeley	M. H. Merrill	Alameda County (a)	221,890*	$158 max.
			San Joaquin County	228,600*	....
			Orange County	293,930*	....
State of Delaware	Dover	F. I. Hudson	Kent and New Castle Counties (b)	171,900*	$400-500
State of Florida	Jacksonville	W. T. Sowder	Alachua County	62,441*	$500 (c)
			Dade-Miami	713,757*	....
			Hillsborough-Tampa	323,023*	....
			Pinellas-St. Petersburg	184,000*	....
State of Illinois	Springfield	R. R. Cross	Cook County (d) (e)	743,988	$416-500
			Will County (e)	134,366	....
State of Kansas	Wichita	T. R. Hood	Kansas City-Wyandotte	172,762	(f) (g)
			Topeka-Shawnee	116,774	....
			Wichita-Sedgwick	272,000	....
State of Maryland	Baltimore	R. H. Riley	Anne Arundel County	133,323*	(g)
			Baltimore County	307,469*	....
			Eastern Health District of Baltimore City	333,000*	....
			Montgomery County	190,560*	....
			Washington County	82,152*	....
State of Massachusetts	Boston	S. B. Kirkwood	(h)	(h)	$450 (i)
State of Michigan	Lansing	A. E. Heustis	Calhoun County	123,230	$400
			Detroit	1,936,270	....
			Kalamazoo City-County	136,460	....
			Michigan Dept. of Health	(m)	....
			Wayne County (j)	531,710	....
State of Minnesota	Minneapolis	A. J. Chesley, Secy. and Ex. Off.	Olmstead-Rochester	47,728*	75% of what job will pay (k)
New York City	New York City	L. Baumgartner, Com. H. P. Kandle, Dep. Com.	....	8,010,000*	$443
State of New York	Albany	H. E. Hilleboe	(l)	(l)	$456
State of North Carolina	Raleigh	J. W. R. Norton	Charlotte-Mecklenburg County	211,754*	....
			Forsyth-Winston-Salem	152,524*	....
			Halifax	58,931*	....
			Orange-Person-Chatham-Lee	112,955*	....
State of Oregon	Portland	H. M. Erickson	Multnomah County	115,320*	(f)
State of Texas	Austin	H. A. Holle	....	....	$700
State of Virginia	Richmond	R. G. Beachley	Arlington County	144,980*	$700
State of Washington	Seattle	B. Bucove	King-Seattle	771,100*	$500
			Clark-Skamania	90,400*	....

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* Estimated.

(a) Excludes Alameda, Berkeley, and Oakland cities with full-time health officers, and Albany and Livermore with part-time officer.

(b) Excludes the city of Wilmington.

(c) To those planning to work in state; transportation costs only to others.

(d) Excludes Berwyn, Chicago, Evanston, Oak Park, Stickney Township, and Winnetka (including Glencoe, Kenilworth, Northbrook, and remainder of New Trier Township), all with full-time health officers.

(e) Assistance can be arranged for securing the MPH degree in the midst of, or after completion of, residency experience. Appointments normally are limited to those training for service in Illinois.

(f) Arrangements for remuneration made on an individual basis.

(g) Arrangements for remuneration made upon determination of field of interest and location desired.

(h) Training is given in a combination of one county, one union health, and seven municipal health departments and in the divisions of the State Department of Health.

(i) To those training for service in Massachusetts only.

(j) Excludes Detroit and Dearborn, each with full-time health officers.

(k) To those training for service in Minnesota only.

(l) Training is given in any one of 10 city health departments, 16 county health departments, or 15 district offices within the state.

(m) Training to be with Michigan Department of Health, with field experience in local health departments.

22. PROCTOLOGY

The following services have been approved by the Council and the American Board of Psychiatry and the Residency Review Committee for Proctology, as offering acceptable training in the specialty.

Hospitals, 12; Assistant Residencies and Residencies, 22

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
White Memorial Hospital[1-3]	Los Angeles	F. E. Bradford	216	2	1	2	2	146
Ochsner Foundation Hospital[1]	New Orleans	M. O. Hines	242	..	1	2	2	200
Hospital[1-3]	Grand Rapids, Mich.	J. A. Ferguson	1,934	16	1	2	2	275
Hospitals[1-3]	Minneapolis	O. H. Wangensteen	...	..	1	1	2	162
	Rochester, Minn.	R. S. Jackman	780	28	2	2	2	150
l[1-3]	Buffalo	W. H. Bernhoft	407	..	1	2	2	225
Youngstown Hospital[1-3]	Youngstown, Ohio	P. J. Fuzy, Sr.	652	11	1	2	2	175
Allentown Hospital[1-3]	Allentown, Pa.	M. S. Kleckner	768	11	1	1	2	225
Temple University Hospital[1-3]	Philadelphia	H. E. Bacon	921	10	1	3	2	...
Pittsburgh Medical Center[1-3]	Pittsburgh	K. M. Zimmerman	615	..	..	1	2	125
Baylor University Hospital[1-3]	Dallas, Texas	C. Rosser	830	..	1	1	2	125
Milwaukee County Hospital[1-3]	Milwaukee	J. D. Charles	195	5	1	3	1	209

23. PSYCHIATRY

The following services have been approved by the Council and the American Board of Psychiatry and Neurology, through the Residency Review Committee for Psychiatry and Neurology, as offering acceptable training in the specialty.

Hospitals, 275; Assistant Residencies and Residencies, 2,689

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Program Identification	Beginning Stipend (Month)
UNITED STATES ARMY									
Letterman Army Hospital[1]	San Francisco	J. M. Caldwell	848	..	3	9	3	12	...
Fitzsimons Army Hospital[1]	Denver	O. M. Weaver	818	..	..	..	3	..	...
Army Medical Center[1-3]	Washington, D. C.	E. B. Litteral	1,104	5	12	19	3	..	...
UNITED STATES NAVY									
U. S. Naval Hospital[1]	Oakland, Calif.	D. C. Gaede	1,352	1	..	..	2	..	...
U. S. Naval Hospital[1-3]	Bethesda, Md.	J. E. Nardini	826	1	3	7	3	..	...
U. S. Naval Hospital[1]	Philadelphia	J. F. McMullin	1,449	7	..	..	2	..	...
UNITED STATES PUBLIC HEALTH SERVICE									
U. S. Public Health Service Hospital[1]	Lexington, Ky.	R. W. Rasor- E. P. Kalbaugh	3,491	7	4	12	3	30	...
National Institutes of Health-Clinical Center[1-3]	Bethesda, Md.	R. Cohen	61	..	..	4	1	..	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE									
Freedmen's Hospital	Washington, D. C.	E. Y. Williams	209	2	1	2	3	..	...
St. Elizabeth's Hospital[1-3]	Washington, D. C.	W. Overholser	8,498	227	12	24	3	20	283
VETERANS ADMINISTRATION									
Veterans Admin. Hospital[1]	Tuskegee, Ala.	P. P. Barker	550	35	2	2	2	..	...
Veterans Admin. Hospital[1]	North Little Rock, Ark.	(See University of Arkansas Affiliated Hospitals)							
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	J. S. L. Jacobs	553	..	1	3	3	..	...
Veterans Admin. Hospital[1-3]	Los Angeles	J. T. Ferguson	3,428	..	16	50	3	11	...
Veterans Admin. Hospital[1-3]	Palo Alto, Calif.	H. D. Von Witzleben	2,199	31	12	34	3	14	...
Veterans Admin. Hospital[1-3]	Denver	L. L. Woodfin	587	1	3	8	3	..	...
Veterans Admin. Hospital[1-3]	West Haven, Conn.	E. B. Brody	229	..	12	30	2	18	...
Veterans Admin. Hospital[1]	Augusta, Ga.	M. Dunn	1,466	13	3	6	2	21	...
Veterans Admin. West Side Hospital	Chicago	....	224	2	2	6	2	..	...
Veterans Admin. Hospital[1]	Downey, Ill.	(See Northwestern University Medical Center)							
Veterans Admin. Hospital	Hines, Ill.	W. D. Steed	369	5	7	10	3	25	...
Veterans Admin. Hospital[1]	Indianapolis	B. Frazin	557	..	2	6	1	..	...
Veterans Admin. Hospital[1-3]	Topeka, Kan.	G. L. Harrington	2,250	9	25	75	3	29	...
Veterans Admin. Hospital[1-3]	Lexington, Ky.	E. W. Straus	1,381	10	2	4	2	31	...
Veterans Admin. Hospital[1-3]	Louisville, Ky.	(See University of Louisville Affiliated Hospitals)							
Veterans Admin. Hospital[1-3]	New Orleans	B. Cohen	236	..	2	4	2	34	...
Veterans Admin. Hospital[1-3]	Perry Point, Md.	W. M. Harris	353	42	4	10	3	37	...
Veterans Admin. Hospital[1-3]	Bedford, Mass.	A. H. Braverman	2,255	23	8	20	3	39	...
Veterans Admin. Hospital[1-3]	Boston (Jamaica Plain)	W. Bloomberg	561	4	10	35	3	..	...
Veterans Admin. Hospital[1-3]	Brockton, Mass.	A. S. Mason	826	12	0	6	1	..	...
Veterans Admin. Hospital[1-3]	Battle Creek, Mich.	A. L. Olsen	2,636	29	4	4	3	42	...
Veterans Admin. Hospital[1-3]	Dearborn, Mich.	J. L. Kubanek	354	7	2	6	3	45	...
Veterans Admin. Hospital[1-3]	Minneapolis	W. Simon	599	..	2	4	3	46	...
Veterans Admin. Hospital[1]	Gulfport, Miss.	E. R. Bennett	1,617	21	2	4	3	84	...
Veterans Admin. Hospital	Jefferson Barracks, Mo.	....	...	..	..	..	3	..	...
Veterans Admin. Hospital[1]	Kansas City, Mo.	W. E. Olson	202	..	1	3	1	..	...
Veterans Admin. Hospital[1-3]	Omaha	W. M. Gysin	555	7	6	7	3	53	...
Veterans Admin. Hospital[1-3]	Lyons, N. J.	M. P. Rosenblum	2,454	42	3	7	3	54	...
Veterans Admin. Hospital[1-3]	Albany, N. Y.	I. C. Funk	488	19	3	9	3	..	...
Veterans Admin. Hospital[1-3]	Brooklyn	J. Barasch	355	6	5	15	3	57	...
Veterans Admin. Hospital[1-3]	Buffalo	B. G. Schutkeker	289	1	1	2	2	56	...
Veterans Admin. Hospital[1-3]	Canandaigua, N. Y.	D. Davis	2,007	32	3	6	2	65	...
Veterans Admin. Hospital[1-3]	Montrose, N. Y.	A. A. Schillinger	2,132	32	5	10	3	61	...
Veterans Admin. Hospital[1-3]	New York City (Bronx)	H. L. Flowers	1,173	..	11	26	3	60	...
Veterans Admin. Hospital[1-3]	Durham, N. C.	J. B. Parker, Jr.	195	..	2	6	3	..	...
Veterans Admin. Hospital[1-3]	Cleveland	L. Halle	371	..	3	6	3	71	...
Veterans Admin. Hospital[1-3]	Coatesville, Pa.	W. Winick	2,123	31	12	22	3	73	...
Veterans Admin. Hospital[1-3]	Philadelphia	M. Cohen	44	..	1	3	1	..	...
Veterans Admin. Hospital[1]	Nashville, Tenn.	B. T. Bennett	260	..	4	7	3	76	...
Veterans Admin. Hospital[1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)							
Veterans Admin. Hospital[1]	Waco, Texas	G. T. McMahan	3,141	24	3	3	1	..	...
Veterans Admin. Hospital[1]	Salt Lake City (NP—Fort Douglas)	R. H. Anderson	609	2	4	12	3	..	...
Veterans Admin. Hospital[1-3]	Richmond, Va.	J. B. Funkhouser	632	6	3	3	3	82	...
Veterans Admin. Hospital[1-3]	Roanoke, Va.	H. P. Morgan	2,657	33	5	15	3	80	...
Veterans Admin. Hospital[1-3]	Seattle	N. C. Chivers	360	18	4	10	3	83	...
Veterans Admin. Hospital[1-3]	Milwaukee (Wood)	N. C. Mace	1,190	9	4	12	3	..	...

Numerical and other references will be found on page 363.

23. PSYCHIATRY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Program Identification	Beginning Stipend (Month)
University Hospital and Hillman Clinic[1-3]	Birmingham, Ala.	F. A. Kay	453	1	1	3	1	..	108
University of Arkansas Affiliated Hospitals			...	..	..	..	3	..	...
Arkansas State Hospital[1-3]	Little Rock, Ark.	W. P. Kolb	4,098	94	6	12	3	..	350
Veterans Admin. Hospital[1]	North Little Rock, Ark.	E. S. Chappell	3,513	63	..	4	12	49	...
Agnews State Hospital[1]	Agnew, Calif.	H. Tucker	7,622	90	5	5	1	..	310
Herrick Memorial Hospit	Calif.	A. E. Bennett	533	3	1	8	2	..	175
Camarillo State Hospita	Calif.	A. Augur	10,136	184	3	5	2	..	...
Compton Sanitarium[1-3]	Compton, Calif.	G. C. Burns	553	..	4	4	1	..	250
Napa State Hospital[1]	Imola, Calif.	W. A. Oliver	7,772	214	2	2	1	..	310
Los Angeles County General Hospital[1]	Los Angeles	E. Ziskind	9,939	26	1	6	3	..	200
Metropolitan State Hospital[1-3]	Norwalk, Calif.	R. E. Wyers	4,018	30	5	15	3	..	310
Patton State Hospital[1-3]	Patton, Calif.	R. J. Lentz	7,161	146	2	2	1	..	310
Langley Porter Clinic-Hospital[1-3]	San Francisco	K. M. Bowman	329	347	12	88	3	..	87
Mount Zion Hospital[1-3]	San Francisco	N. Reider	117	..	..	6	2	..	...
Stanford University Hospitals[1-3]	San Francisco	G. S. Johnson	315	3	1	8	3	..	80
Pacific Colony[1-3]	Spadra, Calif.	G. Tarjan	2,233	28	..	8	1	..	310
University of Colorado Medical Center									
Colorado Psychopathic Hospital[1-3]	Denver	H. S. Gaskill	876	4	12	30	3	16	153
Colorado State Hospital[1-3]	Pueblo, Colo.	P. Dozier	6,647	173	12	18	2	..	415
Institute of Living[1-3]	Hartford, Conn.	F. J. Braceland	1,022	..	8	16	3	..	333
Connecticut State Hospital[1-3]	Middletown, Conn.	H. S. Whiting	4,363	71	8	17	2	..	440
Silver Hill Foundation	New Canaan, Conn.	W. B. Terhune	350	..	..	1	1	..	...
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	T. Lidz	69	..	8	17	3	17	50
Fairfield State Hospital[1-3]	Newtown, Conn.	W. F. Green	4,064	90	5	10	2	..	430
Norwich State Hospital[1-3]	Norwich, Conn.	R. H. Kettle	4,433	115	6	18	3	..	440
Delaware State Hospital[1-3]	Farnhurst, Del.	M. A. Tarumianz	1,409	43	4	10	3	19	200
District of Columbia Gener	C.	J. Schultz	3,485	2	3	8	2	..	169
Georgetown University Hos	C.	G. N. Raines	107	..	4	12	2	..	20
Duval Medical Center[1-3]	Jacksonville, Fla.	S. G. Bedell	544	2	2	5	1	..	175
Jackson Memorial Hospital[1-3]	Miami, Fla.	J. S. Gottlieb	923	..	5	15	2	..	168
ital[1-3]	Atlanta, Ga.	J. S. Skobba	...	..	1	1	1	..	250
	Augusta, Ga.	H. M. Cleckley	903	1	1	2	3	..	160
[1-3]	Chicago	J. Cowen	6,705	90	4	9	3	23	280
[1-3]	Chicago	V. G. Urse	8,140	6	5	5	3	..	...
	Chicago	J. J. Madden	574	1	1	1	1	..	200
	Chicago	J. J. Madden	368	..	1	1	1	..	100
Michael Reese Hospital[1-3]	Chicago	R. R. Grinker	1,005	5	5	15	3	..	50
Mount Sinai Hospital	Chicago	H. H. Garner	206	..	1	2	2	..	...
Northwestern University Medical Center	Chicago	B. Boshes	582	2	2	6	3	..	50
Veterans Admin. Hospital[1]	Downey, Ill.	A. Paunez	3,610	83	20	38	3	26	...
St. Luke's Hospital[1-3]	Chicago	F. J. Gerty	329	..	1	8	3	22	50
University of Chicago Clinics[1-3]	Chicago	D. D. Brockman	151	1	3	9	3	..	175
University of Illinois Neuropsychiatric Institute[1]	Chicago	F. J. Gerty	225	..	3	9	3	27	...
Dixon State School[1-3]	Dixon, Ill.	L. B. Kamenetz	5,000	70	3	3	1	..	280
Elgin State Hospital[1-3]	Elgin, Ill.	W. Tuteur	...	..	6	6	1	23	...
Jacksonville State Hospital[1-3]	Jacksonville, Ill.	S. N. Leschin	4,711	120	4	4	1	..	285
North Shore Health Resort[1-3]	Winnetka, Ill.	S. Liebman	339	3	..	2	1	..	...
Central State Hospital[1]	Indianapolis	C. L. Williams	2,522	8	4	8	2	..	375
Indiana University Medical Center									
Indianapolis General Hospital[1-3]	Indianapolis	E. Mericle	515	4	2	6	3	28	165
Indiana University Medical Center[1]	Indianapolis	M. R. Caldwell	...	..	12	39	3	28	355
Norways Foundation Hospital[1-3]	Indianapolis	J. H. Greist	798	1	2	5	2	..	300
Logansport State Hospital[1]	Logansport, Ind.	G. W. Morrow	3,026	26	4	4	1	..	550
Norman M. Beatty Memorial Hospital	Westville, Ind.	W. R. Van Den Bosch	2,348	31	4	16	1	..	365
Mental Health Institute[1-3]	Cherokee, Iowa	W. C. Brinegar	1,979	54	2	2	1	..	300
Mental Health Institute	Independence, Iowa	D. L. Kyer	1,296	80	6	6	1	..	...
Iowa State Psychopathic Hospital[1-3]	Iowa City	W. R. Miller	306	..	4	10	3	..	200
Halstead Hospita	Halstead, Kan.	T. L. Foster	285	1	3	3	1	..	250
University of Kan	nsas City, Kan.	W. Roth, Jr.	157	1	5	12	3	..	125
C. F. Menninger	Topeka, Kan.	K. A. Menninger	176	..	..	7	3	29	300
Topeka State Hospital[1-3]	Topeka, Kan.	W. S. Simpson	1,904	31	22	62	3	29	300
University of Louisville			...	..	..	5	15	3	...
Central State Hospita			3,092	4	..	..	..	..	...
Louisville General Ho			871	4	..	..	..	..	200
Norton Memorial Hospital[1-3]	Louisville, Ky.	S. S. Ackerly	226	..	..	..	..	..	250
Veterans Admin. Hospital[1-3]	Louisville, Ky.	D. Moore	297	2	..	..	...	32	...
Charity Hospital of Louisiana									
Louisiana State University Unit[1]	New Orleans	R. A. Matthews	501	2	2	6	3	35	100
Tulane University Unit[1]	New Orleans	R. G. Heath	321	4	2	6	3	34	100
De Paul Sanitarium[1-3]	New Orleans	W. J. Otis	...	844	2	6	1	..	...
Johns Hopkins Hospital[1-3]	Baltimore	J. C. Whitehorn	266	1	..	18	3	36	20
Seton Institute[1-3]	Baltimore	L. H. Bartemeier	586	..	3	10	2	..	200
University Hospital[1-3]	Baltimore	J. E. Finesinger	149	..	5	18	3	..	150
Spring Grove Stat		I. Tuerk	4,420	71	6	17	3	..	300
Crownsville State		R. H. Meng	2,390	22	5	5	1	..	418.42
Chestnut Lodge[1-3]		D. M. Bullard	206	..	..	5	1	..	350
Springfield State Hospital[1-3]	Sykesville, Md.	I. L. Hitchman	4,407	91	3	8	2	..	291
Sheppard and Enoch Pratt Hospital[1-3]	Towson, Md.	H. M. Murdock	443	5	5	12	3	..	200
Beth Israel Hospital[1-3]	Boston	G. L. Bibring	...	..	3	6	2	..	250
Hospital[1]	Boston	H. C. Solomon	840	..	8	22	3	..	255
-3	Boston	J. Mann	4,616	110	12	22	3	..	250
Hospital[1-3]	Boston	E. Lindemann	271	1	2	3	2	40	...
Hospitals[1-3]	Boston	W. Malamud	...	..	..	8	3	38	250
spital[1-3]	Boston	J. Hope	...	..	..	2	1	..	83
Hospital[1-3]	Boston	N. Flanagan	621	..	1	1	1	..	125
	ss.	J. T. Shea	1,750	53	2	2	2	..	255
	ss.	P. B. Hagopian	3,210	82	2	2	1	..	255
	Medfield, Mass.	R. H. Turcotte	1,600	31	2	4	1	..	490
	Mass.	J. H. F. Longpre	3,266	..	2	2	1	..	255
	Mass.	R. P. Knight	118	..	..	6	2	.	500
	Taunton, Mass.	W. E. Glass	2,638	62	8	12	2	..	255
Metropolitan State Hospital[1-3]	Waltham, Mass.	M. Asekoff	2,550	69	2	2	2	..	255
McLean Hospital[1-3]	Waverley, Mass.	P. M. Howard	493	9	..	6	2	..	...
Worcester State Hospital[1-3]	Worcester, Mass.	D. Rothschild	3,519	79	8	18	3	..	255
University Hospital[1-3]	Ann Arbor, Mich.	R. W. Waggoner	537	3	9	40	3	..	302
St. Joseph's Retreat[1-3]	Dearborn, Mich.	M. H. Hoffmann	1,541	4	2	2	1	..	330
Henry Ford Hospital[1-3]	Detroit	L. D. Proctor	350	..	1	3	3	41	225
Receiving Hospital[1-3]	Detroit	J. M. Dorsey	5,816	19	2	7	3	44	270
Wayne County General Hospital and Infirmary[1-3]	Eloise, Mich.	L. Hirsch	4,524	55	4	11	3	10	505
Kalamazoo State Hospital[1-3]	Kalamazoo, Mich.	C. M. Schrier	5,133	14	4	6	2	48	645
Northville State Hospital[1-3]	Northville, Mich.	G. R. Forrer	1,676	15	7	15	2	..	510

Numerical and other references will be found on page 363.

23. PSYCHIATRY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Program Identification	Beginning Stipend (Month)
Pontiac State Hospital [1-3]	Pontiac, Mich.	I. A. La Core	3,555	49	6	15	3	10	510
Traverse City State Hospital [1]	Traverse City, Mich.	R. P. Sheets	5,342	75	6	6	2	..	510
Ypsilanti State Hospital [1-3]		O. R. Yoder	4,763	87	5	15	3	..	510
Minneapolis General		R. W. Anderson	669	6	1	2	2	..	182
University of Minnesc		D. W. Hastings	302	1	3	11	3	..	162
Mayo Foundation [1-3]	Rochester, Minn.	H. P. Rome	1,059	1	3	15	3	47	150
Rochester State Hospital [1]	Rochester, Minn.	M. C. Petersen	2,672	135	2	4	1	..	250
Mississippi State Hospital [1]	Whitfield, Miss.	J. J. Head	7,867	60	6	6	1	..	300
Kansas City General Hospital No. 1 [1-3]	Kansas City, Mo.	F. J. Koenig	274	..	2	6	3	..	150
State Hospital No. 2 [1]	St. Joseph, Mo.	O. Mullinax	...	..	2	2	1	..	300
Barnes Hospital [1-3]	St. Louis	E. F. Gildea	596	1	6	13	3	10	50
Homer G. Phillips Hospital [1-3]	St. Louis	E. F. Gildea	1,013	6	3	8	2	..	190
St. Louis City Hospital [1-3]	St. Louis	E. Gildea-R. Britt	1,383	19	4	9	3	..	190
St. Louis State Hospital [1-3]	St. Louis	L. H. Kohler	3,357	39	7	21	3	..	250
St. Mary's Group of Hospitals [1-3]	St. Louis	F. M. Grogan	503	3	1	3	1	50	100
Hastings State Hospital [1-3]	Ingleside, Neb.	G. L. Sandritter	2,261	60	6	12	2	52	400
Norfolk State Hospital [1]	Norfolk, Neb.	C. G. Ingham	1,498	6	3	3	1	52	400
Creighton Memorial-St. Joseph's Hospital	Omaha	F. Barta	938	5	2	6	2	..	175
Lutheran Hospital [1]	Omaha	R. S. Wigton	1,081	..	2	4	2	..	400
University of Nebraska Hospital [1-3]	Omaha	C. Wittson	...	..	2	10	3	51	...
New Hampshire State Hospital [1-3]	Concord, N. H.	E. K. Holt	3,539	70	2	2	1	..	263
Essex County Overbrook Hospital [1-3]	Cedar Grove, N. J.	J. G. Sutton	3,600	101	8	16	2	..	200
New Jersey State Hospital [1-3]	Greystone Park, N. J.	A. Crandell	6,628	130	4	10	2	..	300
New Jersey State Hospital [1-3]	Marlboro, N. J.	J. B. Gordon	4,871	129	2	2	2	..	300
Bergen Pines County Hospital [1-3]	Paramus, N. J.	D. A. MacDonald	956	8	1	1	1	..	200
New Jersey Neuro-Psychiatric Institute [1-3]	Princeton N. J.	R. S. Garber	1,451	21	8	14	2	495	...
New Jersey State Hospital [1-3]	Trenton, N. J.	H. S. Magee	6,139	55	5	10	2	10	475
Albany Hospital [1-3]	Albany, N. Y.	W. Holt	1,452	5	2	5	3	..	...
Binghamton State Hospital [1-3]	Binghamton, N. Y.	O. H Boltz	4,040	42	4	6	1	..	425
Brooklyn State Hospital [1-3]	Brooklyn	N. Beckenstein	...	20	6	17	3	..	425
Kings County Hospital University Service [1-3]	Brooklyn	H. W. Potter	9,875	43	10	30	3	..	156
Buffalo State Hospital [1-3]	Buffalo	D. Whitehead	4,722	82	3	3	3	..	425
Edward J. Meyer Memorial Hospital [1]	Buffalo	S. M. Small	2,665	31	1	3	3	..	179
Central Islip State Hospital [1-3]	Central Islip, N. Y.	F. J. O'Neill	10,815	285	8	24	3	..	425
Hillside Hospital [1-3]	Glen Oaks, N. Y.	J. S. A. Miller	553	..	6	14	3	10	200
Meadowbrook Hospital [1-3]	Hempstead, N. Y.	R. R. Steen	1,092	22	1	1	1	..	225
Pinewood Sanitarium [1-3]	Katonah, N. Y.	W. A. Thompson	327	..	1	1	1	..	250
Kings Park State Hospital [1-3]	Kings Park, N. Y.	C. Buckman	11,188	155	13	13	2	..	425
River Crest Sanitarium [1-3]	Long Island City, N. Y.	M. Dollin	948	4	..	2	1	..	350
Marcy State Hospital [1-3]	Marcy, N. Y.	G. L. Warner	3,033	13	5	5	2	..	212
Middletown State Hospital [1-3]	Middletown, N. Y.	W. A. Schmitz	3,483	100	9	9	2	..	412
Bellevue Medical Center Medical Division III—New York University College of Medicine [1-3]	New York City	L. I. Sharp	18,225	115	27	58	3	58	105
Manhattan State Hospital [1-3]	New York City	J. H. Travis	4,523	72	13	13	3	59	425
Mount Sinai Hospital [1-3]	New York City	M. R Kaufman	145	..	4	9	2	..	50
New York Hospital [1-3]	New York City	O. Diethelm	300	2	4	13	3	..	69
New York State Psychiatric Institute [1-3]	New York City	L. C. Kolb	323	1	15	15	3	..	425
New York University-Bellevue Medical Center University Hospital [1-3]	New York City	S. B Wortis	...	..	..	4	1	58	85
Roosevelt Hospital [1-3]	New York City	R. W. Laidlaw	87	..	..	1	1	..	116
St. Lawrence State Hospital [1-3]	Ogdensburg, N. Y.	H. B. Snow	2,774	55	8	16	2	..	395
Rockland State Hospital [1-3]	Orangeburg, N. Y.	A. M. Stanley	9,807	136	8	8	3	10	431
Stony Lodge [1-3]	Ossining, N. Y.	B. C. Glueck, Jr.	161	..	..	2	1	..	...
High Point Hospital [1-3]	Port Chester, N. Y.	A. Gralnick	...	..	..	4	2	..	375
Hudson River State Hospital [1-3]	Poughkeepsie, N. Y.	O. A. Kilpatrick	6,225	39	..	2	3	62	425
Creedmoor State Hospital [1-3]	Queens Village, N. Y.	H. A. La Burt	8,145	118	9	35	3	..	425
Rochester State Hospital [1-3]	Rochester, N. Y.	C. F. Terrence	3,700	59	3	7	3	64	425
Strong Memorial-Rochester Municipal Hospital [1-3]	Rochester, N. Y.	J. Romano	15,206	2	5	15	3	63	...
Ellis Hospital [1-3]	Schenectady, N. Y.	E. Davidoff	641	5	2	3	2	..	150
Syracuse Psychopathic Hospital [1-3]	Syracuse, N. Y.	R. F. Binzley	567	1	2	6	3	66	425
Letchworth Village [1-3]	Thiells, N. Y.	H. C. Storrs	4,315	..	2	3	1	..	425
Utica State Hospital [1-3]	Utica, N. Y.	B. B. Young	2,746	44	3	5	2	..	425
Grasslands Hospital [1-3]	Valhalla, N. Y.	F. V. Rockwell	1,227	10	2	7	3	..	175
Pilgrim State Hospital [1-3]	West Brentwood, N. Y.	H. J. Worthing	14,201	367	20	40	3	..	425
New York Hospital—Westchester Division [1-3]	White Plains, N. Y.	J. H. Wall	740	7	5	12	3	..	150
Willard State Hospital [1-3]	Willard, N. Y.	K. Keill	3,591	68	4	8	2	..	425
Harlem Valley State Hospital [1-3]	Wingdale, N. Y.	L. P. O'Donnell	6,497	118	3	7	2	55	425
North Carolina Memorial Hospital [1]	Chapel Hill, N. C.	G. C. Ham	479	..	8	21	3	..	250
Duke University Hospital [1-3]	Durham, N. C.	E. W. Busse	412	..	4	14	3	..	167
State Hospital [1-3]	Raleigh, N. C.	D. A. Young	2,347	41	4	8	2	..	...
Graylyn North Carolina Baptist Hospitals [1-3]	Winston-Salem, N. C.		...	..	..	..	3	..	...
Windsor Hospital [1-3]	Chagrin Falls, Ohio	J. H. Nichols	732	1	..	1	1	70	300
Christ Hospital [1]	Cincinnati	H. D. Fabing	624	3	1	1	1	..	200
Cincinnati General Hospital [1-3]	Cincinnati	M. Levine	1,424	..	12	39	3	69	112
Jewish Hospital [1-3]	Cincinnati	P. Piker	50	5	..	2	1	..	200
Longview State Hospital [1]	Cincinnati	D. Goldman	3,434	89	5	8	1	..	...
Cleveland Clinic Hospital [1-3]	Cleveland	L. J. Karnosh	...	..	2	3	2	70	175
Cleveland Receiving Hospital [1-3]	Cleveland	K. Salus	1,188	12	..	..	2	..	500
University Hospitals [1-3]	Cleveland	D. D. Bond	192	..	3	6	2	71	125
Columbus State Hospital [1-3]	Columbus, Ohio	B. Kovitz	3,518	148	4	12	2	10	500
Ohio State University Hospitals ...al [1-3]	Columbus, Ohio	R. M. Patterson	487	1	6	21	3	10	292
	Massillon, Ohio	A. G. Hyde	3,321	41	..	2	1	..	236
	Worthington, Ohio	H. S. Evans	749	..	2	4	2	..	...
Hospital [1-3]	Norman, Okla.	J. Behrman	1,500	..	4	12	2	..	500
	Salem, Ore.	D. K. Brooks	5,647	119	..	6	1	..	570
		K. E. Appel	230	7	..	2	1	..	300
Danville State Hospita		O. W. Clinger	3,156	25	8	17	3	..	433
Embreeville State Hospital [1-3]	Embreeville, Pa.	J. V. Cohn	900	32	2	4	1	..	...
Harrisburg State Hospital [3]	Harrisburg, Pa.	H. C. Eaton	3,105	47	4	8	2	..	433
Norristown State Hospital [1]	Norristown, Pa.	A. P. Noyes	5,334	96	4	21	3	..	433
Albert Einstein Medical Center—Southern Division [1-3]	Philadelphia	P. Sloane	...	..	..	2	1	..	250
Friends Hospital [1-3]	Philadelphia	T. L. Dehne	463	7	3	6	2	..	300
Hospital of the University of Pennsylvania [1-3]	Philadelphia	K. Appel	...	..	..	9	2	..	...
Institute of the Pennsylvania Hospital [1]	Philadelphia	L. H. Smith	295	..	..	6	2	72	250
Jefferson Medical College Hospital [1-3]	Philadelphia	B. L. Keyes	54	..	1	1	1	..	...
Pennsylvania Hospital-Department for Mental and Nervous Diseases [1]	Philadelphia	L. H. Smith	377	1	6	12	2	72	...

Numerical and other references will be found on page 363.

23. PSYCHIATRY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Program Identification	Beginning Stipend (Month)
Philadelphia General Hospital [1-3]	Philadelphia	J. F. Stouffer	2,595	30	3	8	3	..	375
Philadelphia Psychiatric Hospital [1-3]	Philadelphia	S. Cohen	949	..	4	10	3	..	167
Philadelphia State Hospital [1-3]	*Philadelphia*	E. L. Sielke	7,089	24	6	12	2	..	433
Temple University Hospital [1-3]	Philadelphia	O. S. English	133	..	2	6	8	74	...
St. Francis General Hospital and Rehabilitation Institute [1-3]	Pittsburgh	H. L. Mitchell	3,037	29	1	3	2	..	250
Western Psychiatric Institute [1-3]	Pittsburgh	H. W. Brosin	356	..	12	36	3	75	...
Warren State Hospital [1-3]	Warren, Pa.	R. H. Israel	4,136	103	12	26	3	..	...
Woodville State Hospital [1]	Woodville, Pa.	R. J. Phifer	3,367	3	4	4	1	..	333
State Hospital for Mental Diseases [1-3]	Howard, R. I.	J. F. Regan	4,847	93	8	14	2	..	375
Butler Hospital [1-3]	Providence, R. I.	H. H. Babcock	279	..	2	6	2	..	200
Charles V. Chapin Hospital [1-3]	Providence, R. I.	W. N. Hughes	845	..	2	2	1	..	413
Emma Pendleton Bradley Home [1-3]	Riverside, R. I.	M. W. Laufer	72	..	..	3	1	..	250
Gailor Psychiatric Hospital [1-3]	Memphis, Tenn.	T. S. Hill	277	..	3	3	3	..	331
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	W. F. Orr	78	..	2	6	3	76	50
Parkland Memorial Hospital [1-3]	Dallas, Texas	E. J. McCranie	308	..	..	2	3	10	50
Timberlawn Sanitarium [1]	Dallas, Texas	G. F Witt	607	..	3	6	2	..	300
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	T. Harris	3,196	1	10	30	3	77	...
Baylor University College of Medicine Affiliated Hospitals		...	...	..	..	..	3	..	...
Jefferson Davis Hospital [1-3]	Houston, Texas	W. T. Lhamon	292	2	1	2	..	..	...
Methodist Hospital [1-3]	Houston, Texas	M. Bettis	...	..	..	..	..	..	...
Veterans Admin. Hospital [1-3]	Houston, Texas	O. E. Hubbard	792	2	4	12	..	78	...
Salt Lake County General Hospital [1-3]	Salt Lake City	C. H. H. Branch	266	..	3	10	3	..	175
Brattleboro Retreat [1-3]	Brattleboro, Vt.	J. B. Tompkins	1,049	4	4	4	1	..	417
Vermont State Hospital [1-3]	Waterbury, Vt.	R. A. Chittick	1,778	31	2	4	2	..	420
University of Virginia Hospital [1-3]	Charlottesville, Va.	D. C. Wilson	689	1	8	20	3	80	220
Medical College of Virginia-Hospital Division [1-3]	Richmond, Va.	R. F. Gayle, Jr.	692	2	1	3	3	..	50
Eastern State Hospital [1-3]	Williamsburg, Va.	G. L. Jones	3,126	..	10	15	2	81	640
Western State Hospital [1-3]	Fort Steilacoom, Wash.	R. W. Brown	4,224	118	9	18	1	..	391
Pinel Foundation [1-3]	Seattle	J. B. Dugan	118	..	..	8	1	..	400
University Hospitals [1]	Madison, Wis.	H. H. Reese	(Included in Neurology)			1	3	..	...
Milwaukee County Hospital for Mental Diseases [1]	Milwaukee	M. Kasak	1,971	9	3	9	2	10	100
Milwaukee Sanitarium [1-3]	Wauwautosa, Wis.	J. A. Kindwall	603	1	1	1	1	..	400
Queen's Hospital [1-3]	Honolulu, T. H.	J. G. Lynn, IV	420	..	1	3	1	..	125
Territorial Hospital [1-3]	Kaneohe, T. H.	R. A. Kimmich	1,782	15	2	4	1	..	633

PSYCHIATRY PROGRAM IDENTIFICATION

10. Service in child psychiatry.
11. Six months service at Los Angeles County Hospital, Los Angeles.
12. Nine months service at Mount Zion Hospital, six months at Langley Porter Clinic and service in child psychiatry, San Francisco.
13. Three months of service at Napa State Hospital, San Francisco Hospital, Stricktou State Hospital, Sonoma State Home and San Quentin Prison; and six months at Colwell Memorial Hospital.
14. Three months service Fort Miley Veterans Adminisration Hospital, San Francisco, and Langley Porter Clinic, San Francisco; may include elective services at University of California Hospital, Mount Zion Hospital and Stanford University (Lane) Hospital, San Francisco.
15. Three months service at Pacific Colony Hospital, Spadra, and three months service in child psychiatry at Camarillo State Hospital.
16. Affiliate services at Colorado General and Denver General Hospitals.
17. Affiliate service at Veterans Administration Hospital, West Haven Connecticut State Hospital, Fairfield State Hospital, Norwich State Hospital and service in child psychiatry.
18. Twelve months service at Grace-New Haven Community Hospital, New Haven, Connecticut.
19. Six months service at Governor Bacon Health Center, Delaware City.
20. Two months service at George Washington University Hospital, Washington, D. C.
21. Affiliate service at University Hospital, Augusta, Georgia.
22. Twelve months service at the Neuropsychiatric Institute of the University of Illinois including service in child psychiatry.
23. Eighteen months affiliate service including service at the Neuropsychiatric Institute of the University of Illinois and three months in child psychiatry.
24. Affiliate service at Neuropsychiatric Institute of the University of Illinois and service in child psychiatry.
25. Three months service at Veterans Administration Hospital, Downey, Illinois, and service in child psychiatry.
26. Six months service at Veterans Administration Hospital, Hines, Illinois. May include service in child psychiatry.
27. Six months service in child psychiatry.
28. Integrated program including service at Veterans Administration Hospital, Indianapolis General Hospital and Indiana University Medical Center and Affiliated Hospitals, Indianapolis.
29. Integrated program including service at Veterans Administration Hospital, Menninger Sanitarium and Topeka State Hospital, Topeka, Kansas.
30. Four months service at University of Louisville Services, Louisville, Kentucky, and four months service at Cincinnati General Hospital, Cincinnati, Ohio.
31. Three months service at University of Louisville Services, Louisville, Kentucky.
32. Twelve months service at University of Louisville Services. May include four months service at Central State Hospital; four months service at Louisville General Hospital.
33. Four months service at Central State Hospital and service in child psychiatry.
34. Integrated program including service at Tulane University Unit, Charity Hospital, New Orleans, and Veterans Administration Hospitals, New Orleans, and Gulfport, Mississippi.
35. Six months service in child psychiatry and twelve months service at South Louisiana State Hospital.
36. Service in child psychiatry; six months service at Veterans Administration Hospital, Perry Point, Maryland.
37. Three months service in child psychiatry at Johns Hopkins Hospital (Harriet Lane House), Baltimore, Maryland.
38. Twelve months service at Boston State Hospital and service in child psychiatry.
39. Twelve-eighteen months service at Veterans Administration Hospital, Boston (Jamaica Plain), Massachusetts, and six months service in child psychiatry.
40. Integrated program including service at Massachusetts General Hospital and McLean Hospital, Waverly.
41. Twelve months service at University Hospital, Ann Arbor, Michigan.
42. University Hospital, Ann Arbor, Michigan.
43. Three months service Coldwater State Home and Training School, Caro State and Ionia State Hospitals and service in child psychiatry.
44. Six months service in child psychiatry at Children's Hospital, Detroit.
45. Six months service at Receiving Hospital, Children's Hospital, Detroit, and Wayne County General Hospital and Infirmary, Eloise, Michigan.
46. University of Minnesota Hospitals, Minneapolis, Minnesota.
47. Three months service at Rochester State Hospital, Rochester, Minn.
48. Affiliate service at Barnes Hospital, St. Louis and three months at St. Louis State Hospital.
49. Six months service at Barnes Hospital, St. Louis, Missouri.
50. Service at St. Louis State Hospital and St. Louis City Hospital.
51. Service at Lutheran Hospital, Omaha.
52. Service at University of Nebraska Hospital.
53. Affiliate service at University of Nebraska Hospital and Creighton Memorial-St. Joseph Hospital, Omaha, Nebraska.
54. Six months service at Newark City Hospital; three months at New Jersey State Hospital and three months in child psychiatry.
55. Three months service at Albany Hospital, Albany, New York.
56. Affiliate services at Edward J. Meyer Memorial Hospital and Buffalo State Hospital.
57. Six months service at King's County Hospital, Brooklyn, New York.
58. Integrated program with service at Bellevue Hospital Center and University Hospital.
59. Six months service at Mount Sinai Hospital, New York City.
60. Service in child psychiatry. May include six months service at Mount Sinai Hospital and three months at Manhattan State Hospital.
61. Twelve months service at New York Hospital and four months at Veterans Administration Hospital, New York City (Bronx), New York.
62. Three months service at Grasslands, Rockland State, Albany Hospitals and Letchworth Village.
63. Six months service at Rochester State Hospital, Rochester, New York.
64. Six months service at Strong Memorial-Rochester Municipal Hospitals, Rochester.
65. Affiliate service at Strong Memorial-Rochester Municipal Hospitals.
66. Three months service at Syracuse Memorial, Binghamton, Syracuse and Willard State Hospitals, service at Craig Colony and service in child psychiatry.
67. Affiliate service at State Hospitals at Raleigh and Butner, North Carolina.
68. Eighteen months service at Duke Hospital, Durham, North Carolina.
69. Three months service at Longview State and Jewish Hospitals, Cincinnati.
70. Integrated program including service at Cleveland Clinic and Windsor Hospital.
71. Integrated program including service at University Hospital and Veterans Administration Hospital, Cleveland, Ohio.
72. Integrated program with service at Institute of the Pennsylvania Hospital and Pennsylvania Hospital Department for Mental and Nervous Diseases.
73. Affiliate services at Temple University Hospital, Institute of Pennsylvania, Hospital of the Woman's Medical College of Pennsylvania.

Numerical and other references will be found on page 363.

PSYCHIATRY PROGRAM IDENTIFICATION—Continued

74. Six months service at Philadelphia General Hospital and service in child psychiatry.
75. Two months affiliate service for institutional care.
76. Integrated program including service at Vanderbilt University Hospital, Veterans Administration Hospital, Nashville, Veterans Administration Hospital, Murfreesboro, and Central State Hospital, Nashville.
77. Four months affiliate service at St. Mary's Infirmary, Galveston, Texas.
78. Service in child psychiatry at *Jefferson Davis Hospital, Houston,* Texas.
79. Six months affiliate service at Veterans Administration Hospital, Salt Lake City, Utah, and affiliate services at State Hospital, Provo, Utah.
80. Integrated program including service at University of Virginia Hospital, Charlottesville and Veterans Administration Hospital, Roanoke, Va.
81. Affiliate service at Southwestern State Hospital, Marion and Lynchburg State Colony, Lynchburg, Va.
82. Six months service at Medical College of Virginia—Hospital Division, Richmond, and service in child psychiatry.
83. Six months service at Veterans Administration Hospital, American Lake, Washington, and six months in child psychiatry.

24. PULMONARY DISEASES

The following services have been approved for one year of training by the Council and the Subspecialty Board for Pulmonary Diseases of the American Board of Internal Medicine.

Hospitals, 105; Assistant Residencies and Residencies, 381

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
UNITED STATES ARMY							
Fitzsimons Army Hospital[1]	Denver	O. W. Tempel	1,564	11	..	..	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
Freedmen's Hospital[1-3]	Washington, D. C.	H. M. Payne	166	5	1	3	...
VETERANS ADMINISTRATION							
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	K. Smith	1,526	51	..	1	...
Veterans Admin. Hospital	Baltimore	R. L. McLean	...	..	..	..	...
Veterans Admin. Hospital[1-3]	Rutland Heights, Mass.	S. T. Allison	1,361	35	1	1	...
Veterans Admin. Hospital[1-3]	Minneapolis	W. W. Stead	627	32	1	1	...
Veterans Admin. Hospital[1-3]	Excelsior Springs, Mo.	R. K. Smith	661	8	3	12	...
Veterans Admin. Hospital[1-3]	Albuquerque, N. Mex.	J. W. Berry	681	25	1	1	...
Veterans Admin. Hospital[1-3]	Castle Point, N. Y.	C. J. Kaufman	1,007	31	2	2	...
Veterans Admin. Hospital[1-3]	Sunmount, N. Y.	J. W. Raleigh	996	10	2	2	...
Veterans Admin. Hospital[1-3]	Oteen, N. C.	W. S. Schwartz	4,501	26	6	6	...
Veterans Admin. Hospital[1-3]	Brecksville, Ohio	J. A. O'Hale	758	14	1	1	...
Veterans Admin. Hospital[1-3]	Memphis, Tenn.	S. Phillips	656	10	2	2	...
Veterans Admin. Hospital[1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)					
Veterans Admin. Hospital[1-3]	McKinney, Texas	D. O. Shields	481	6	2	4	...
Veterans Admin. Hospital[1-3]	Richmond, Va.	K. Plummer	688	10	..	2	...
Veterans Admin. Hospital[1-3]	Madison, Wis.	J. K. Curtis	790	17	5	8	...
Veterans Admin. Hospital[1-3]	Milwaukee (Wood)	R. A. Hemphill	398	28	1	1	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
City of Hope National Medical Center[1-3]	Duarte, Calif.	L. Tepper	219	7	4	4	400
Arroyo-Del-Valle[1-3]	Livermore, Calif.	J. T. Duncan	646	2	1	1	195
Barlow Sanatorium[1-3]	Los Angeles	H. W. Bosworth	221	..	2	2	100
Bret Harte Sanatorium	Murphys, Calif.	C. N. Reese	637	12	1	1	...
San Diego County General Hospital[1-3]	San Diego, Calif.	B. J. Comer	352	14	1	3	150
San Francisco Hospital							
Stanford University Service	San Francisco	H. C. Hinshaw	433	9	1	2	175
University of California Service[3]	San Francisco	S. M. Farber	477	16	1	2	175
Santa Clara County Hospital	San Jose, Calif.	M. Manson	205	20	1	3	...
Fairmont Hospital of Alameda County[1-3]	San Leandro, Calif.	J. L. Eaton	433	6	1	1	195
Tulare-Kings Counties Hospital[1-3]	Springville, Calif.	W. A. Winn	528	9	4	4	550
National Jewish Hospital[3]	Denver	S. H. Dressler	590	13	2	5	200
Cedarcrest Hospital	Newington, Conn.	R. C. Edson	643	14	1	1	335
Uncas-on-Thames[1-3]	Norwich, Conn.	N. L. Cressy	859	27	2	2	335
Laurel Heights State Tuberculosis Sanatorium[1-3]	Shelton, Conn.	E. J. Lynch	597	11	2	2	200
District of Columbia General Hospital[1-3]	Washington, D. C.	S. Katz	287	8	1	3	143
Glenn Dale Hospital[1-3] (P. O. Glenn Dale, Md.)	Washington, D. C.	M. Weiss	1,151	21	4	4	338
City of Chicago Municipal Tuberculosis Sanitarium[1-3]	Chicago	L. H. Berard	2,828	55	2	2	175
Peoria Municipal Tuberculosis Sanitarium[1-3]	Peoria, Ill.	D. Morse	191	9	1	1	250
Lake County Tuberculosis Sanatorium[1-3]	Waukegan, Ill.	C. K. Petter	277	8	..	1	250
Indianapolis General Hospital[1-3]	Indianapolis	J. Stygall	477	3	..	1	335
Sunnyside Sanatorium[1-3]	Indianapolis	A. G. Popplewell	375	9	2	2	...
Healthwin Hospital[1]	South Bend, Ind.	E. W. Custer	331	7	1	1	500
Charity Hospital of Louisiana							
Louisiana University State Unit[1]	New Orleans	W. R. Akenhead	327	12	1	3	175
Tulane University Unit[1]	New Orleans	G. E. Burch	384	18	1	3	175
Central Maine Sanatorium[1-3]	Fairfield, Maine	W. B. Grow	259	7	1	1	75
Baltimore City Hospitals[1-3]	Baltimore	E. G. Beacham	390	8	2	3	75
Boston Sanatorium[1-3]	Boston	J. A. Foley	1,069	7	1	5	202
Fall River General	[illegible]	H. J. McKenna	143	..	1	1	125
Middlesex County	[illegible]	F. P. Dawson	542	12	1	1	445
Westfield State Sanatorium[1-3]	Westfield, Mass.	J. M. Houser	254	6	3	3	490
Worcester City Hospital[3]	Worcester, Mass.	....	181	10	1	2	215
American Legion Hospital[1-3]	Battle Creek, Mich.	A. Dietrich, Jr.	437	6	1	1	300
Henry Ford Hospital[1-3]	Detroit	E. O. Coates	523	..	1	3	225
Herman Kiefer Hospital[1-3]	Detroit	P. T. Chapman	2,334	64	9	11	505
Michigan State Sanatorium[1]	Howell, Mich.	E. W. Gentles	640	..	4	4	733
Ingham Chest Hospital and Clinic	Lansing, Mich.	C. J. Stringer	170	2	1	2	350
Morgan Heights Sanatorium[1-3]	Marquette, Mich.	J. R. Acocks	145	2	1	1	400
Wm. H. Maybury Sanatorium[1-3]	Northville, Mich.	W. L. Howard	1,459	24	2	2	274
Glen Lake Sanatorium[1-3]	Oak Terrace, Minn.	R. H. Frost	870	23	4	4	241
Mayo Foundation[1-3]	Rochester, Minn.	....	...	..	..	..	...
Mississippi State Tuberculosis Sanatorium[1-3]	Sanatorium, Miss.	H. Boswell	956	..	2	2	300
Robert Koch Hospital[1-3]	Koch, Mo.	B. Friedman	1,166	10	5	16	267
St. Mary's Group of Hospitals[1-3]	St. Louis	G. O. Broun	211	17	1	1	100
New Jersey Sanatorium for Chest Diseases[1-3]	Glen Gardner, N. J.	J. A. Smith	510	6	5	5	475
B. S. Pollak Hospital for Chest Diseases[1-3]	Jersey City, N. J.	S. Cohen	1,411	29	..	10	167
Bergen Pines County Hospital[1-3]	Paramus, N. J.	R. R. Little	376	36	2	2	200
Essex County Sanatorium[1-3]	Verona, N. J.	A. M. Hicks	757	12	3	5	416
Albany Hospital[1-3]	Albany, N. Y.	R. Erickson	261	15	1	1	...
Kings County Hospital							
County Division[1-3]	Brooklyn	C. E. Hamilton	436	9	2	2	156
Edward J. Meyer Memorial Hospital[1]	Buffalo	D. R. McKay	472	25	..	1	179
Nassau County Tuberculosis Hospital[1-3]	Farmingdale, N. Y.	J. G. Carlton	505	13	6	6	...

Numerical and other references will be found on page 363.

24. PULMONARY DISEASES—*Continued*

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Hermann M. Biggs Memorial Hospital[1-3]	Ithaca, N. Y.	N. S. Lincoln	487	7	2	2	400
Triboro Hospital	Jamaica, N. Y.	R. H. Bennett	1,540	28	14	14	105
Niagara Sanatorium[1-3]	Lockport, N. Y.	A. N. Aitken	340	9	1	1	296
Mount Morris Tuberculosis Hospital[1-3]	Mt. Morris, N. Y.	F. L. Armstrong	436	22	2	2	400
Bellevue Medical Center							
Division I—Columbia University[1-3]	New York City	J. B. Amberson	2,797	81	22	30	105
Manhattan General Hospital[1-3]	New York City	J. S. Edlin	747	7	2	6	150
Metropolitan Hospital[1-3]	*New York City*	*I. Epstein*	*695*	*19*	5	5	104
Montefiore Hospital[1-3]	New York City	R. Bloch	910	*26*	5	7	75
Morrisania City Hospital[1-3]	New York City	P. Hurwitz	...	6	1	1	104.58
New York City Hospital[1-3]	New York City	S. Bassin	*364*	7	1	2	104
St. Joseph's Hospital for Chest Diseases[1-3]	New York City	F. J. McCarthy	446	11	4	4	...
Willard Parker Hospital[1-3]	New York City	H. Alexander	273	3	3	3	157
Homer Folks Tuberculosis Hospital[1-3]	Oneonta, N. Y.	R. Horton	540	14	2	3	400
Ray Brook State Tuberculosis Hospital[1-3]	Ray Brook, N. Y.	F. Beck	651	..	3	3	470
Iola-Monroe County Tuberculosis Sanatorium[1-3]	Rochester, N. Y.	J. M. MacMillan	567	7	6	6	346
Glenridge Sanatorium[1-3]	Schenectady, N. Y.	J. M. Blake	268	5	2	2	150
Sea View Hospital[1-3]	Staten Island, N. Y.	G. G. Ornstein	3,339	34	25	25	157
Grasslands Hospital[1-3]	Valhalla, N. Y.	W. G. Childress	551	23	3	7	175
Duke University Hospital[1-3]	Durham, N. C.	E. E. Menefee	140	1	..	1	250
North Carolina Sanatorium for the Treatment of Tuberculosis[1-3]	McCain, N. C.	W. M. Peck	1,275	9	2	4	500
City Hospital[1-3]	*Cleveland*	*R. C. McKay*	*832*	*26*	..	4	379
Benjamin Franklin Hospital[1-3]	Columbus, Ohio	H. I. Humphrey	*621*	7	1	1	425
Ohio State University Hospitals							
University Hospital[1-3]	Columbus, Ohio	R. H. Browning	...	..	2	9	...
Ohio Tuberculosis Hospital[1-3]	Columbus, Ohio	R. J. Atwell	311	9	2	8	288
Sunny Acres-Cuyahoga County Tuberculosis Hospital[1-3]	Warrenville, Ohio	H. G. Curtis	875	19	3	3	333
Mahoning Tuberculosis Sanatorium[1-3]	Youngstown, Ohio	H. H. Teitelbaum	310	6	3	3	350
Eagleville Sanatorium[1]	Eagleville, Pa.	J. J. Kirshner	407	3	3	3	...
Pennsylvania State Sanatorium for Tuberculosis No. 3[1-3]	Hamburg, Pa.	F. R. Lang	991	..	4	6	390
Tuberculosis League Hospital[1-3]	Pittsburgh	C. H. Marcy	481	8	1	1	250
Mont Alto State Sanatorium (Pennsylvania State Sanatorium No. 1)[1]	South Mountain, Pa.	W. A. Gette	1,667	17	2	2	...
Oakville Memorial Sanatorium[1-3]	Oakville, Tenn.	S. C. Carter	497	11	1	2	200
Parkland Memorial Hospital[1-3]	Dallas, Texas	J. O. Armstrong	301	4	1	1	50
Baylor University College of Medicine Affiliated Hospitals							
Veterans Admin. Hospital[1-3]	Houston, Texas	D. E. Jenkins	1,104	54	2	4	...
Blue Ridge Sanatorium	Charlottesville, Va.	F. B. Stafford	829	5	2	2	375
Firland Sanatorium[1-3]	Seattle	G. H. Hames	1,832	36	2	2	200
Central Washington Tuberculosis Hospital	Selah, Wash.	...	...	..	..	..	...
Muirdale Sanatorium[1]	Milwaukee	A. V. Cadden	1,244	10	..	1	259
Wisconsin State Sanatorium[1]	Statesan, Wis.	E. F. White	198	..	1	1	350
Leahi Hospital[1-3]	Honolulu, T. H.	H. H. Walker	1,011	9	4	4	350

25. RADIOLOGY

The following services have been approved by the Council and the American Board of Radiology, through the Residency Review Committee for Radiology. As indicated in the column "Type of Training," approval has been extended in diagnostic roentgenology (D.R.); roentgenology (Roent.), including diagnostic and therapeutic; therapeutic radiology (Ther. Rad.), and radiology (Rad.), *including roentgenology and therapeutic* radiology.

Hospitals, 428; Assistant Residencies and Residencies, 1,731

FEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY											
Letterman Army Hospital[1]	San Francisco	P. O. Wells	Rad.	39,150	5,015	...	188	2	6	3	...
Fitzsimons Army Hospital[1]	Denver	F. Y. Leaver	Roent.	59,840	1,969	916	90	..	..	3	...
Army Medical Center[1-3]	Washington, D. C.	E. A. Lodmell—H. L. Berman	Rad.	61,918	10,699	1,872	642	3	9	3	...
Brooke Army Hospital[1-3]	San Antonio, Texas	V. A. Isherwood	Roent.	78,067	6,091	199	82	3	9	3	...
Tripler Army Hospital[1]	Honolulu, T. H.	D. T. McCarthy	Roent.	20,591	367	378	89	1	3	3	...
UNITED STATES NAVY											
U. S. Naval Hospital[1]	Oakland, Calif.	C. D. Burroughs	D.R.	36,189	2,220	262	12	..	..	2	...
U. S. Naval Hospital[1]	San Diego, Calif.	J. L. Messersmith	Rad.	109,856	4,854	250	54	..	..	3	...
U. S. Naval Hospital[1-3]	Bethesda, Md.	S. F. Williams	Rad.	31,596	4,225	142	16	1	2	2	...
U. S. Naval Hospital[1]	Chelsea, Mass.	J. L. Hatch	D.R.	22,727	246	1	14	1	2	2	...
U. S. Naval Hospital[1]	St. Albans, N. Y.	C. Gartenlaub	Roent.	61,070	3,547	187	96	..	..	3	...
U. S. Naval Hospital[1]	Philadelphia	G. C. Daughtridge	Roent.	17,436	1,353	150	12	..	..	2	...
UNITED STATES PUBLIC HEALTH SERVICE											
U. S. Public Health Service Hospital[1-3]	New Orleans	G. A. Shipman	D.R.	22,338	.....	...	..	1	3	2	...
U. S. Public Health Service Hospital[1]	Baltimore	I. Lewis	Rad.	16,127	5,035	595	146	1	3	3	...
National Institutes of Health-Clinical	Md.	T. Hilbish	D.R.	9,847	499	...	..	..	2	1	...
U. S. Public Health Service Hospital[1-]	Y.	W. M. Sennott	Roent.	22,820	2,127	332	..	2	5	2	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE											
Freedmen's Hospital[1-3]	Washington, D. C.	C. W. Kelley	Rad.	27,598	196	310	177	1	2	3	...
VETERANS ADMINISTRATION											
[1-3]	Birmingham, Ala.	W. W. Johnston	D.R.	26,067	.....	...	..	1	3	2	...
[1]	Tuskegee, Ala.	J. J. Peters	D.R.	14,526	.....	...	..	2	2	2	...
[1-3]	Long Beach, Calif.	F. Isaac	Rad.	57,806	4,733	1,700	1	2	6	3	...

25. RADIOLOGY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Veterans Admin. Hospital[1-3]	Los Angeles	C. W. McClanahan	Rad.	55,126	11,143	2,260	45	3	8	3	...
	San Francisco	W. W. Saunders	Roent.	27,481	8,931	141	12	1	3	2	...
	Denver	C. F. Ingersoll	D.R.	26,837	1,351	54	4	2	6	2	...
	Conn.	....	D.R.	12,029	.....	...	..	2	5	1	...
	, Conn.	A. B. Skorneck	D.R.	14,198	1,524	...	..	2	4	1	...
	Washington, D. C.	S. R. Bersack	D.R.	13,014	1,898	139	7	1	3	2	...
	Atlanta, Ga.	I. R. Berger	D.R.	15,581	3,625	595	7	1	3	2	...
	Augusta, Ga.	S. M. Roberts	D.R.	18,804	1,211	100	3	2	4	2	...
pital[1]	Chicago	(See Northwestern University Medical Center)									
	Hines, Ill.	F. L. Hussey	Rad.	80,639	13,270	489	59	2	8	3	...
	Indianapolis	(See Indiana University Medical Center and Affiliated Hospitals)									
	Des Moines, Iowa	P. J. Trier	Roent.	28,013	1,959	253	2	1	3	2	...
	Iowa City	G. S. Lodwick	Rad.	15,861	2,252	183	5	2	6	2	...
	Wadsworth, Kan.	(See Research and Affiliated Hospitals, Kansas City, Mo.)									
	Louisville, Ky.	E. R. Seitz	Rad.	41,800	1,372	155	7	1	3	3	...
	New Orleans	C. P. Oderr	D.R.	15,487	4,017	300	3	2	4	2	...
	Fort Howard, Md.	M. Ginsberg	D.R.	11,137	2,180	28	..	1	1	1	...
	Boston (Jamaica Plain)	E. G. Wissing	Roent.	42,104	4,784	173	3	2	6	2	...
	Dearborn, Mich.	(See Wayne University Affiliated Hospitals, Detroit)									
	Minneapolis	J. Jorgens	Rad.	74,000	3,950	350	40	3	10	3	...
	Kansas City, Mo.	(See Research and Affiliated Hospitals, Kansas City, Mo.)									
	St. Louis	S. Kamberg	Roent.	3,822	1,568	230	2	2	6	1	...
	East Orange, N. J.	J. R. Nahon	D.R.	19,424	2,461	55	2	2	3	1	...
	Albany, N. Y.	H. Thomas	D.R.	27,174	2,741	101	1	2	6	1	...
	Brooklyn	W. Schlein	Roent.	27,877	4,516	384	24	1	3	2	...
	Buffalo	K. Flachs	Roent.	19,500	2,340	150	..	1	2	2	...
	New York City (Bronx)	J. Stein	Rad.	65,759	11,855	455	131	3	9	3	...
	Durham, N. C.	A. T. Hornsby	D.R.	22,104	1,170	17	48	1	3	1	...
	Cleveland	M. D. Sachs	Rad.	34,976	3,765	197	4	2	6	3	...
	Oklahoma City	(See University of Oklahoma Affiliated Hospitals)									
	Portland, Ore.	K. C. Hardesty	Roent.	19,800	3,894	163	6	1	2	3	...
	Philadelphia	G. T. Wohl	Rad.	20,916	2,853	102	9	..	4	3	...
	Pittsburgh	S. Lewis	D R.	21,092	5,550	170	..	1	1	1	...
	Memphis, Tenn.	B. E Greenberg	Rad.	42,662	2,949	65	55	2	4	2	...
	Nashville, Tenn.	D. E. Sherman	Roent.	21,208	2,223	373	15	1	3	2	...
Veterans Admin. Hospital[1-3]	Dallas, Texas	W. L. De Ginder	Rad.	16,211	1,487	203	39	3	6	3	...
[1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)									
[1-3]	McKinney, Texas	B. K. Lovell	Rad.	27,364	2,287	280	40	2	4	3	...
	Salt Lake City	(See University of Utah Affiliated Hospitals)									
[1]	White River Junction, Vt.	N. W. Loud	Roent.	26,717	766	27	..	1	2	2	...
[1-3]	Richmond, Va.	H. Goodman	Roent.	25,971	3,575	122	12	1	3	2	...
Veterans Admin. Hospital[1-3]	Martinsburg, W. Va.	H. Litwer	D.R.	29,900	1,090	5	..	1	2	1	...
Veterans Admin. Hospital[1-3]	Milwaukee (Wood)	T. J. Pfeffer	Roent.	37,951	7,040	842	10	1	3	2	...
Veterans Admin. Hospital[3]	San Juan, P. R.	L. Ehrlich	D.R.	7,711	.....	...	27	1	2	2	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
University Hospital and Hillman Clinic[1-3]	Birmingham, Ala.	M. B. Carter	Rad.	24,487	6,172	...	90	2	4	3	108
University Hospital[1-3]	Little Rock, Ark.	I. Meschan	Rad.	19,016	6,932	977	59	3	10	3	145
Kern General Hospital[1]	Bakersfield, Calif.	J. W. Birsner	D.R.	29,965	1,048	175	24	1	3	2	325
Herrick Memorial Hospital[1-3]	Berkeley, Calif.	H. P. Brean	D.R.	13,313	.....	1,694	15	1	2	2	175
San Joaquin General Hospital[1-3]	French Camp, Calif.	A. Cove	D.R.	......	.....	...	1,614	1	1	2	235
General Hospital of Fresno County[1]	Fresno, Calif.	C. L. Ould	D.R.	15,865	984	1,085	..	1	1	1	300
Seaside Memorial Hospital[1-3]	Long Beach, Calif.	H. J. Prichard—G. Beckstrand	Rad.	12,789	5,503	...	..	1	3	3	150
Cedars of Lebanon Hospital[1-3]	Los Angeles	E. Freedman	Rad.	11,363	5,981	...	28	2	5	3	150
Hospital of the Good Samaritan	Los Angeles	J. D. Camp	Rad.	31,385	.....	...	59	2	2	3	...
Los Angeles County General Hospital[1]	Los Angeles	G. Jacobson	Rad.	91,704	10,185	1,496	324	2	10	3	200
Presbyterian Hospital-Olmsted Memorial[1-3]	Los Angeles	C C. Benz—W. H. Brown	D.R.	13,048	2,570	...	18	1	1	1	125
Queen of Angels Hospital[1-3]	Los Angeles	L. S. Goin	Rad.	15,032	1,852	308	..	1	3	3	150
White Memorial Hospital[1-3]	Los Angeles	W. L. Stilson	Rad.	11,565	4,108	682	85	2	6	3	146
Highland-Alameda County Hospital[1-3]	Oakland, Calif.	H. H. Jensen	Rad.	22,124	2,985	...	25	1	3	3	195
Collis P. and Howard Huntington Memorial Hospital[1-3]	Pasadena, Calif.	R. S. Harrison—W. B. Hill	D.R.	10,751	1,627	...	..	1	2	2	240
Sutter General Hospital[1-3]	Sacramento, Calif.	C. E. Grayson	Rad.	10,089	13,401	3,086	32	..	2	2	247
San Diego County General Hospital[1-3]	San Diego, Calif.	E. L. Whitehead	Rad.	19,659	1,838	159	24	1	2	3	150
Children's Hospital[1-3]	San Francisco	G. G. King	Roent.	6,554	1,162	63	22	1	1	1	125
Mount Zion Hospital[1-3]	San Francisco	J. Levitin	D.R.	12,972	1,300	126	12	1	1	2	...
St. Francis Memorial Hospital[1-3]	San Francisco	A. A. De Lorimier	Rad.	16,872	3,557	1,378	26	1	1	2	250
St. Mary's Hospital[1-3]	San Francisco	C. S. Capp	Roent.	14,029	1,450	362	11	1	2	2	150
San Francisco Hospital											
Stanford University Service	San Francisco	L. H. Garland	Roent.	......	.....	...	..	..	2	2	175
University of California Service[3]	San Francisco	A. J. Williams	Roent.	38,134	2,151	...	57	..	2	2	175
Stanford University Hospitals[1-3]	San Francisco	H. S. Kaplan	Rad.	14,634	4,215	168	135	2	7	3	80
University of California Hospital[1-3]	San Francisco	R. S. Stone	Rad.	28,415	9,799	445	142	..	6	3	87
Santa Clara County Hospital[1]	San Jose, Calif.	J. J. McCort	Roent.	11,037	1,410	258	12	1	2	2	...
St. John's Hospital	Santa Monica, Calif.	T. E. Havel	D.R.	9,013	1,843	220	16	1	1	1	175
Harbor General Hospital[1-3]	Torrance, Calif.	J. H. Woodruff	Rad.	32,844	1,792	431	34	2	6	3	200
Glockner-Penrose Hospital[1-3]	Colorado Springs, Colo.	J. McMullen—J. Del Regato	Roent.	18,816	7,689	1,176	2	3	4	3	200
St. Francis Hospital[1-3]	Colorado Springs, Colo.	V. L. Bolton	Roent.	5,190	1,075	512	11	1	1	2	175
General Rose Memorial Hospital[1]	Denver	J. H. Weiss—M. H. Levine	D.R.	12,526	1,581	...	10	1	1	1	160
Presbyterian Hospital[1-3]	Denver	K. D. A. Allen	Rad.	10,141	5,773	100	69	1	3	3	150
St. Joseph's Hospital[1-3]	Denver	E. J. Meister	Rad.	10,031	1,539	31	15	1	3	1	150
St. Luke's Hospital[1-3]	Denver	W. P. Stampfli	Roent.	12,780	332	2,140	12	2	3	2	150
University of Colorado Medical Center											
Colorado General Hospital[1-3]	Denver	R. R. Lanier	Rad.	25,106	2,625	242	105	3	9	..	150
Denver General Hospital[1-3]	Denver	E. Salzman	.....	24,659	988	275	20	..	..	..	...
Bridgeport Hospital[1-3]	Bridgeport, Conn.	J. J. Esposito	Rad.	14,975	2,019	...	104	1	2	2	240
Hartford Hospital[1-3]	Hartford, Conn.	R. T. Ogden	Rad.	36,676	12,974	...	59	2	4	3	50
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	A. H. Janzen—R. M. Lowman	Rad.	51,725	8,211	774	175	3	9	3	50
Hospital of St. Raphael[3]	New Haven, Conn.	R. Shapiro	Rad.	18,305	5,610	403	6,013	2	6	3	125
St. Mary's Hospital[1-3]	Waterbury, Conn.	K. R. Kaess	Roent.	18,006	1,926	...	24	1	3	1	225
Waterbury Hospital[1]	Waterbury, Conn.	J. M. James	Roent.	14,678	1,327	...	35	1	2	2	225

Numerical and other references will be found on page 363.

25. RADIOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Delaware Hospital[1-3]	Wilmington, Del.	W. W. Lattomus	Rad.	23,068	8,509	343	169	1	3	3	190
Central Dispensary and Emergency Hospital[1]	Washington, D. C.	J. E. Wissler	Rad.	14,987	2,233	307	9	1	3	3	200
District of Columbia General Hospital[1-3]	Washington, D. C.	S. Newman	D.R.	41,131	984	48	32	2	4	2	113
Doctors Hospital[1-3]	Washington, D. C.	F. O. Coe	Rad.	21,757	8,702	1,563	77	1	2	3	...
Garfield Memorial Hospital[1-3]	Washington, D. C.	A. O. Hampton	Rad.	14,730	5,732	740	15	2	5	3	200
Georgetown University Hospital[3]	Washington, D. C.	W. Baensch	Rad.	19,739	4,984	...	20	3	8	3	50
George Washington University Hospital[1-3]	Washington, D. C.	W. Stanbro	Roent.	21,170	5,802	253	2	..	4	3	150
Duval Medical Center[1-3]	Jacksonville, Fla.	I. Isaacs	D.R.	16,602	3,039	221	29	1	1	1	150
St. Luke's Hospital[1]	Jacksonville, Fla.	W. S. Rizk	D.R.	13,289	.....	...	..	1	1	1	225
Jackson Memorial Hospital[1-8]	Miami, Fla.	H. E. Davis	Rad.	43,456	6,624	708	102	3	5	3	75
Mount Sinai Hospital[1-3]	Miami Beach, Fla.	A. G. Levin	D.R.	8,553	786	12	25	1	1	1	250
Crawford W. Long Memorial Hospital[1-3]	*Atlanta, Ga.*	*R. A. Elmer*	*Rad.*	*16,904*	*3,560*	*75*	*44*	*1*	2	3	110
Georgia Baptist Hospital[1-3]	Atlanta, Ga.	L. Long—S. Cline	D.R.	15,807	4,094	61	..	1	1	1	...
Grady Memorial Hospital[1-8]	Atlanta, Ga.	H. S. Weens	Rad.	43,218	7,174	583	67	2	6	3	20
Piedmont Hospital[1]	Atlanta, Ga.	E. G. Smith, Jr.	D.R.	6,787	385	385	30	1	1	1	100
University Hospital[1-3]	Augusta, Ga.	L. P. Holmes	Rad.	22,821	1,678	185	4	2	4	3	100
Emory University Hospital[1]	Emory University, Ga.	T. F. Leigh	Rad.	20,747	.....	8,141	77	1	3	3	190
Augustana Hospital[1-3]	Chicago	D. S. Beilin	Roent.	13,346	2,301	...	..	1	3	3	150
Cook County Hospital[1-3]	Chicago	G. M. Landau	Rad.	95,034	16,911	3,023	98	11	11	3	...
Englewood Hospital[3]	Chicago	A. J. Rosenblate	Roent.	7,737	889	...	..	1	1	1	200
Grant Hospital[1-3]	Chicago	A. M. Pantone	D.R.	9,434	1,489	...	..	1	1	1	225
Illinois Central Hospital[1-3]	Chicago	*R. R. Lough—* R. C. Crain	Rad.	28,606	3,875	313	15	1	1	2	200
Illinois Masonic Hospital[1-3]	Chicago	J. H. Gilmore	Rad.	20,423	2,409	209	45	1	1	3	115
Mercy Hospital[1-3]	*Chicago*	*W. W. Furey*	*Rad.*	*17,324*	*10,408*	*987*	*150*	1	1	2	100
Michael Reese Hospital[1-3]	Chicago	B. Levine—E. Uhlmann	Rad.	35,359	6,000	65	2,341	4	8	3	75
Mount Sinai Hospital[1-3]	Chicago	J. Arendt	Roent.	22,636	5,038	485	21	3	6	2	100
Northwestern University Medical Center											
Chicago Wesley Memorial Hospital[1-3]	Chicago	A. H. Cannon	Rad.	37,914	3,273	75	78	1	4	3	50
Passavant Memorial Hospital[1-3]	Chicago	R. B. Lewis	Roent.	15,494	2,600	100	125	2	2	3	50
Veterans Admin. Research Hospital[1-3]	Chicago	W. Moss—G. Cailleteau	Roent.	13,095	3,521	173	7	9	9	2	...
Evanston Hospital[1-3]	Evanston, Ill.	R. G. Willy	Rad.	28,425	5,508	269	42	2	4	3	50
Presbyterian Hospital[1]	*Chicago*	*F. H. Squire*	*Rad.*	*40,349*	*2,911*	*1,329*	*44*	2	4	3	125
Ravenswood Hospital[1-3]	Chicago	D. L. Jenkinson	Roent.	11,470	2,082	206	..	1	2	3	85
St. Anne's Hospital[1-3]	Chicago	R. M. Cassidy	D.R.	18,540	3,490	275	34	1	2	2	200
St. Bernard's Hospital[1-3]	Chicago	B. C. Cushway-K. Lewis	Rad.	2,816	2,400	416	120	1	2	2	200
St. Luke's Hospital[1-3]	Chicago	E. H. Jenkinson	Rad.	5,089	.....	...	9	2	6	3	50
University of Chicago Clinics[1-3]	Chicago	P. C. Hodges	Rad.	38,974	17,052	600	95	4	12	3	175
University of Illinois Research and Educational Hospitals[1]	Chicago	R. A. Harvey	Rad.	66,755	12,769	...	52	3	7	3	...
St. Francis Hospital[1-3]	Evanston, Ill.	A. C. Ledoux	Roent.	27,799	2,875	35	15	1	..	2	175
Little Company of Mary Hospital[1-3]	Evergreen Park, Ill.	W. W. Furey	Rad.	36,648	1,765	963	41	3	3	3	150
St. Francis Hospital[1-3]	Peoria, Ill.	*P. R. Dirkse-* D. F. Anderson	Roent.	20,555	3,359	403	5	1	2	2	...
Swedish American Hospital	Rockford, Ill.	H. W. Ackerman	Rad.	11,862	1,401	1,401	176	1	3	1	...
Clinic Hospital[1-3]	Bluffton, Ind.	R. E. Bishop	Rad.	21,952	2,026	...	20	1	2	2	400
St. Joseph's Hospital[1-3]	Fort Wayne, Ind.	C. H. Warfield	Roent.	14,870	2,853	144	..	1	2	2	250
St. Margaret Hospital	Hammond, Ind.	J. F. Larrabee	D.R.	16,209	2,440	351	21	1	1	1	300
Indiana University Medical Center Hospitals											
Indianapolis General Hospital[1-3]	Indianapolis	W. A. Tosick	Rad.	35,763	3,382	83	43	1	3	2	170
Indiana University Medical Center[1]	Indianapolis	J. A. Campbell	Rad.	28,264	6,685	410	84	4	12	3	165
Veterans Admin. Hospital[1]	Indianapolis	H. R. Griffith	Roent.	16,793	2,559	247	6	1	3	2	...
Methodist Hospital[1-3]	Indianapolis	*H. C. Ochsner*	Rad.	*39,575*	*3,640*	*3,357*	*6,997*	1	1	3	273
St. Elizabeth Hospital	Lafayette, Ind.	G. W. Hunsberger	Roent.	11,262	1,612	229	33	1	3	2	175
Iowa Methodist Hospital[1-3]	Des Moines, Iowa	A. B. Phillips	Rad.	13,606	1,432	...	53	1	2	3	150
University Hospitals[1-3]	Iowa City	H. D. Kerr	Rad.	58,464	16,807	...	378	2	6	3	118
University of Kansas Medical Center[1-3]	Kansas City, Kan.	G. M. Tice	Rad.	26,324	6,892	747	87	1	5	3	125
St. Francis Hospital[1-3]	Wichita, Kan.	J. R. Kline	D.R.	17,385	2,938	217	58	1	2	2	275
Wesley Hospital[1-3]	Wichita, Kan.	N. C. Nash	Rad.	15,559	3,387	...	..	1	1	1	150
St. Joseph Infirmary[1-3]	Louisville, Ky.	S. E. Johnson	Rad.	26,488	5,505	1,834	118	1	3	3	185
University of Louisville Hospitals											
Louisville General Hospital[1-3]	Louisville, Ky.	E. L. Pirkey	Rad.	38,503	2,731	...	38	2	6	3	...
Veterans Admin. Hospital[1-3]	*Louisville, Ky,*	*E. R. Seitz*	*Rad.*	*41,800*	4,017	*300*	3	1	3	3	...
Charity Hospital of Louisiana[1]	New Orleans	M. Garcia	Rad.	169,388	48,631	3,795	233	5	15	3	100
Ochsner Foundation Hospital[1]	New Orleans	E. H. Little	Rad.	47,876	2,930	281	..	2	4	3	200
Southern Baptist Hospital[1]	New Orleans	L. J. Bristow, Jr.	Rad.	22,356	5,185	428	46	1	3	3	225
Touro Infirmary[1]	New Orleans	A. R. Payzant	Rad.	27,964	2,613	198	51	1	3	3	100
Confederate Memorial Medical Center[1]	Shreveport, La.	W. Snow	Rad.	28,231	6,296	863	84	2	6	3	125
Eastern Maine General Hospital[1]	Bangor, Maine	H. A. Smith	Roent.	18,146	2,008	502	13	1	11	2	100
Central Maine General Hospital[1]	Lewiston, Maine	C. F. Miller	Roent.	10,627	1,582	148	58	1	2	2	150
Maine General Hospital[1]	Portland, Maine	J. Spencer	Rad.	17,822	2,930	57	29	1	2	3	100
Baltimore City Hospitals[1-3]	Baltimore	J. De Carlo	D.R.	44,568	845	467	5	1	4	2	75
Johns Hopkins Hospital[13]	Baltimore	R. H. Morgan	Rad.	*69,296*	*11,000*	...	270	..	8	3	20
Mercy Hospital[1-3]	Baltimore	E. R. Dana	Roent.	19,241	1,180	...	29	..	1	1	275
Sinai Hospital[1-3]	Baltimore	J. O. Salik	D.R.	17,873	1,112	...	29	1	3	2	110
University Hospital[1-3]	Baltimore	J. M. Dennis	Rad.	62,338	7,604	...	113	1	3	3	50
Washington County Hospital	Hagerstown, Md.	S. H. Macht	D.R.	13,695	1,792	627	47	1	1	1	250
Beth Israel Hospital[1-3]	Boston	S. A. Robins-F. G. Fleischner	Rad.	22,778	1,158	180	4	2	5	3	100
Boston City Hospital[1-3]	Boston	M. Ritvo	Rad.	81,026	5,969	1,615	38	8	11	3	112
Children's Medical Center[1-3]	Boston	E. B. D. Neuhauser	Roent.	22,131	.....	...	..	..	2	2	50
Faulkner Hospital[1-3]	Boston	L. E. Hawes	Roent.	9,041	1,136	25	..	1	2	2	200
Lahey Clinic[1-']	Boston	M. I. Smedal	Roent.	73,589	12,323	92	504	2	4	3	175
Massachusetts	Boston	L. L. Robbins	Rad.	47,167	15,838	...	135	3	7	3	800
Massachusetts ''	Boston	G. Levene	D.R.	35,430	2,194	172	6	1	3	2	50
New England Center Hospital[1-3]	*Boston*	A. Ettinger	D.R.	*35,645*	*2,065*	*76*	*6*	..	3	2	100
New England Deaconess Hospital[1-3]	Boston	J. H. Marks	Roent.	19,664	3,185	123	49	1	3	3	135
Peter Bent Brigham Hospital[1-3]	Boston	M. C. Sosman	Rad.	23,910	2,219	...	12	2	3	3	42
St. Elizabeth's Hospital[1-3]	Boston	W. A. Carey	D.R.	13,101	867	...	23	1	1	1	125
Cambridge City Hospital[1-3]	Cambridge, Mass.	F. A. Herzan	Rad.	14,588	605	...	2	..	1	1	160
Mount Auburn Hospital[1-3]	Cambridge, Mass.	R. Schatzki	Roent.	15,677	2,141	159	..	..	3	1	...
Lawrence General Hospital[1-3]	Lawrence, Mass.	G. V. West	Roent.	11,572	2,184	225	14	1	3	1	175
Lynn Hospital[1-3]	Lynn, Mass.	*H. A. Osgood*	*Roent.*	*21,680*	*3,261*	...	7	2	2	3	150
Newton-Wellesley Hospital[1-3]	Newton, Mass.	C. Liebman	Roent.	13,925	1,253	21	5	1	2	2	170
Salem Hospital[1-3]	Salem, Mass.	S. A. Wilson	Roent.	13,154	1,771	445	1	1	3	3	125
Springfield Hospital[1-3]	*Springfield, Mass.*	R. A. Grugan	D.R.	12,508	110	1,581	10	1	1	1	125
Memorial Hospital[1-3]	Worcester, Mass.	W. J. Elliott	Roent.	14,643	.....	...	21	1	1	1	200

Numerical and other references will be found on page 363.

25. RADIOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Mayo Foundation [1-3]	Rochester, Minn.	H. M. Weber	Rad.	259,636	26,912	820	1,516	7	28	3	150
Charles T. Miller Hospital [1]	St. Paul	H. O. Peterson	Rad.	14,612	8,486	...	8,486	1	3	3	185
St. Joseph's Hospital [1-3]	St. Paul	J. P. Medelman	Roent.	13,018	2,523	...	13	1	1	1	162
Kansas City General Hospital No. 1 [1-3]	Kansas City, Mo.	J. W. Barry	Rad.	21,040	1,478	264	88	1	3	3	150
Menorah Medical Center [1-3]	Kansas City, Mo.	D. S. Dann	Roent.	16,116	1,643	411	47	..	1	2	200
Research and Affiliated Hospitals											
Veterans Admin. Hospital [1-3]	Wadsworth, Kan.	...	Roent.	22,706	2,169	103	7	4	10	2	...
Children's Mercy Hospital	Kansas City, Mo.	...	.....	.....	.....	...	..	..	..	..	...
Kansas City General Hospital No. 2 [1-3]	Kansas City, Mo.	I. H. Lockwood	D.R.	14,318	231	...	2	1	2	3	...
Research Hospital [1-3]	Kansas City, Mo.	I. H. Lockwood	Rad.	123,049	10,821	3,607	667	4	12	3	220
Veterans Admin. Hospital [1]	Kansas City, Mo.	A. Wolkin	Rad.	25,067	1,686	116	3	2	6	1	...
St. Joseph Hospital [1-3]	Kansas City, Mo.	C. E. Virden	Rad.	16,141	3,541	35	160	1	1	3	...
St. Luke's Hospital [1-3]	Kansas City, Mo.	L. A. Scarpellino	Roent.	11,985	2,567	103	48	1	3	3	175
Barnes Hospital [1-3]	St. Louis	H. Wilson	Rad.	61,396	16,852	391	362	..	10	3	100
De Paul Hospital [1-3]	St. Louis	E. C. Ernst, Sr.	Rad	9,931	1,793	225	53	3	4	3	200
Homer G. Phillips Hospital [1-3]	St. Louis	W. E. Allen, Jr.	Rad.	24,994	2,043	108	96	1	4	3	190
Jewish Hospital [1-3]	St. Louis	H. R. Senturia	Rad.	14,136	5,351	372	39	1	1	2	100
St. Louis City Hospital	St. Louis	D. Weir	Rad.	89,313	2,834	...	176	2	6	3	190
St. Luke's Hospital [1]	St. Louis	O. C. Zink	Roent.	10,806	1,580	18	71	1	1	3	200
St. Mary's Group of Hospitals [1-3]	St. Louis	L. Sante	Rad.	27,121	3,902	164	52	1	3	3	100
Creighton Memorial-St. Joseph's Hospital	Omaha	J. F. Kelly, Sr.	Rad.	14,023	1,897	102	41	1	3	3	175
Nebraska Methodist Hospital	Omaha	H. B. Hunt	Rad.	10,510	4,727	951	80	1	4	3	200
[illegible] [1-3]	Omaha	J. F. Kelly, Sr.	Roent.	6,672	412	81	7	1	3	3	...
[illegible] ospital [1-3]	Omaha	H. B. Hunt	Rad.	13,330	2,060	331	68	1	3	3	...
[illegible] Hospital [1-3]	Hanover, N. H.	L. K. Sycamore	Rad.	23,693	3,160	344	98	1	3	3	188
[illegible]	Atlantic City, N. J.	R. Bradley	Roent.	9,785	3,328	330	65	1	1	1	200
St. Joseph Mercy Hospital [1-3]	Ann Arbor, Mich.	S. W. Donaldson	Roent.	23,298	1,420	215	28	1	3	3	...
University Hospital [1-3]	Ann Arbor, Mich.	F. J. Hodges	Rad.	51,819	9,912	929	210	4	12	3	145
Leila Y. Post Montgomery Hospital [1]	Battle Creek, Mich.	S. P. Barden	Rad.	6,542	25	...	235	..	..	3	275
Children's Hospital [1-3]	Detroit	W. A. Evans	D.R.	8,483	.....	7	..	..	2	1	...
Grace Hospital [1-3]	Detroit	H. A. Jarre	Rad.	35,477	5,627	1,494	40	1	4	3	225
Harper Hospital [1-3]	Detroit	L. Reynolds	Rad.	26,509	20,752	463	385	3	9	3	225
Henry Ford Hospital [1-3]	Detroit	H. P. Doub	Rad.	69,103	4,532	1,411	76	3	9	3	225
Mount Carmel Mercy Hospital [1-3]	Detroit	J. M. Grace	Roent.	44,198	4,243	163	38	2	4	2	225
Providence Hospital [1-3]	Detroit	W. A. Irwin	Rad.	19,504	.....	...	159	1	3	3	250
Sinai Hospital [1-3]	Detroit	H. Z. Mellins	D.R.	11,300	1,516	36	8	1	2	1	275
Wayne University Affiliated Hospitals											
Veterans Admin. Hospital [1-3]	Dearborn, Mich.	E. E. Levine	Rad.	25,553	4,728	89	4	2	6	2	...
Detroit Memorial Hospital [1-3]	Detroit	...	.....	.....	.....	...	..	..	..	..	...
Herman Kiefer Hospital [1-3]	Detroit	C. C. Birkelo	D.R.	55,519	.....	...	..	2	2	1	505
Receiving Hospital [1-3]	Detroit	J. E. Lofstrom	Rad.	50,292	5,238	443	35	6	18	2	270
Wayne County General Hospital and Infirmary [1-3]	Eloise, Mich.	J. Zbikowski	D.R.	45,050	1,964	51	12	2	3	2	279
Hurley Hospital [1]	Flint, Mich.	D. R. Limbach	Rad.	56,349	6,329	592	12	2	6	3	325
St. Joseph Hospital [1-3]	Flint, Mich.	...	D.R.	.....	.....	...	..	..	..	2	...
Blodgett Memorial Hospital [1-3]	Grand Rapids, Mich.	H. C. Jones	Roent.	13,758	3,898	10	42	1	2	2	225
Butterworth Hospital [1-3]	Grand Rapids, Mich.	E. C. Wabby	Rad.	14,343	1,829	122	163	1	2	2	225
St. Joseph Mercy Hospital [1-3]	Pontiac, Mich.	E. J. Keeffe	D.R.	22,353	2,958	...	33	1	1	2	325
Beyer Memorial Hospital	Ypsilanti, Mich.	W. R. Rekshan	D.R.	14,342	914	20	14	1	1	1	220
Northwestern Hospital [1]	Minneapolis	C. O. Hansen	Roent.	13,117	10,770	624	38	1	1	2	200
Swedish Hospital [1-3]	Minneapolis	L. G. Idstrom	Rad.	32,863	3,851	...	60	1	1	3	200
University of Minnesota Hospitals [1-3]	Minneapolis	L. G. Rigler	Rad.	47,544	11,639	918	158	6	21	3	175
Cooper Hospital [1-3]	Camden, N. J.	P. D. Gilbert	Rad.	25,510	4,612	324	48	1	1	2	200
Hackensack Hospital [1-3]	Hackensack, N. J.	E. J. Ryan	Rad.	14,635	2,538	86	20	1	3	2	125
Jersey City Medical Center [1-3]	Jersey City, N. J.	H. J. Perlberg	Roent.	38,502	10,130	396	195	4	6	3	145
Morristown Memorial Hospital	Morristown, N. J.	F. Reed, Jr.	Roent.	12,093	1,950	191	19	1	1	1	185
Burlington County Hospital [13]	Mt. Holly, N. J.	H. P. Kane	Roent.	7,705	778	83	7	1	1	1	100
Harrison S. Martland Medical Center [1-3]	Newark, N. J.	P. J. Santora	Roent.	15,906	2,308	124	16	1	2	1	162
Hospital of St. Barnabas and for Women and Children [1-3]	Newark, N. J.	P. J. Gianquinto	Roent.	7,863	1,531	334	19	1	2	2	150
Newark Beth Israel Hospital [1-3]	Newark, N. J.	N. J. Furst	Roent.	9,552	4,973	147	68	1	1	2	75
Orange Memorial Hospital [1-3]	Orange, N. J.	W. H. Seward	Roent.	15,968	4,188	1,548	21	1	1	1	150
Mercer Hospital [3]	Trenton, N. J.	M. P. Mains	Roent.	11,850	1,371	...	..	..	1	3	150
Albany Hospital [1-3]	Albany, N. Y.	J. F. Roach	Rad.	24,630	8,246	...	92	2	4	2	...
Brooklyn Hospital [1-3]	Brooklyn	J. H. Wentworth	Rad.	18,610	2,035	225	35	1	3	3	...
Cumberland Hospital [1-3]	Brooklyn	E. Mendelson	D.R.	18,093	.....	...	..	1	3	2	...
Jewish Hospital [1-3]	Brooklyn	S. S. Schwartz	Rad.	23,790	2,435	140	26	2	5	3	75
Kings County Hospital [1-3]	Brooklyn	L. Harrington-A. B. Friedman	Rad.	129,386	10,554	1,048	63	6	8	3	104
Long Island College Hospital [1-3]	Brooklyn	A. L. L. Bell	Rad.	23,000	3,609	30	45	1	3	3	75
Maimonides Hospital [1-3]	Brooklyn	M. Slobodkin	D.R.	25,070	1,477	81	11	..	3	2	75
Methodist Hospital [1-3]	Brooklyn	...	Roent.	12,267	1,637	38	16	1	2	2	175
Buffalo General Hospital [1-3]	Buffalo	G. J. Culver	Rad.	25,529	7,009	...	102	2	4	3	175
Edward J. Meyer Memorial Hospital	Buffalo	E. G. Eschner	Roent.	33,009	1,242	745	14	1	3	3	179
Roswell Park Memorial Institute [1-3]	Buffalo	W. T. Murphy	Rad.	28,718	.....	...	789	3	10	3	...
Clifton Springs Sanitarium and Clinic [1-3]	Clifton Springs, N. Y.	J. M. Flanagan	Roent.	6,196	863	77	1	..	1	1	100
Flushing Hospital	Flushing, N. Y.	...	D.R.	.....	.....	...	..	..	..	2	...
Meadowbrook Hospital [1-3]	Hempstead, N. Y.	H. R. Zatzkin	Rad.	29,815	7,995	477	28	1	3	3	225
Queens Hospital Center [1-3]	Jamaica, N. Y.	A. V. Shapiro-L. B. Goldman	Rad.	59,282	4,488	1,380	56	2	4	3	105
Charles S. Wilson Memorial Hospital [1-3]	Johnson City, N. Y.	B. D. Jay	Roent.	21,644	1,805	442	12	1	2	2	200
Mount Vernon Hospital [3]	Mount Vernon, N. Y.	A. Joffe	Roent.	12,300	660	38	13	1	1	2	150
New Rochelle Hospital [1-3]	New Rochelle, N. Y.	J. F. Miller	Roent.	19,830	2,019	40	14	1	2	2	225
Bellevue Medical Center											
Division III-New York University College of Medicine [1-3]	New York City	M. Poppel	Rad.	131,352	12,308	823	283	14	22	3	71
Beth David Hospital [1-3]	New York City	M. Birnkrant	D.R.	9,765	.....	...	..	1	1	1	...
Beth Israel Hospital [1-3]	New York City	A. J. Bendick	D.R.	15,240	1,955	140	5	2	3	2	135
Bronx Hospital [1-3]	New York City	A. J. Bernstein-J. R. Freid	Roent.	17,353	2,797	271	12	1	2	2	100
Doctors Hospital [1-3]	New York City	A. J. Tillinghast	Roent.	5,418	783	...	..	..	..	2	200
Flower and Fifth Avenue Hospitals [1-3]	New York City	F. J. Borrelli	Rad.	38,666	1,362	276	290	1	3	3	...
Fordham Hospital	New York City	H. Poster	D.R.	28,797	.....	...	7	1	2	1	...
Francis Delafield Hospital [1-3]	New York City	H. Jacox	Rad.	9,039	14,006	349	23	11	12	3	106
French Hospital [1-3]	New York City	E. M. Claiborne	Roent.	10,126	660	...	4	1	1	2	100
Goldwater Memorial Hospital [1-3]	New York City	H. K. Taylor	D.R.	10,898	1,022	83	..	2	3	1	104
Harlem Hospital [1-3]	New York City	I. Arons-I. Landsman	Rad.	68,614	4,637	2,352	19	1	3	2	...
Hospital for Joint Diseases [1-3]	New York City	M. M. Pomeranz	Roent.	25,306	5,158	233	24	1	3	3	...
Lenox Hill Hospital [1-3]	New York City	F. H. Ghiselin	Roent.	31,890	3,514	120	26	1	2	3	180

Numerical and other references will be found on page 363.

25. RADIOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Lincoln Hospital[1-3]	New York City	R. Feig	Roent.	30,264	343	135	7	1	2	2	105
Memorial Center for Cancer and Allied Diseases[1-3]	New York City	R. Sherman-J. J. Nickson	Rad.	88,161	39,113	...	548	4	21	2	98
Metropolitan Hospital[1-3]	New York City	F. J. Borrelli	D.R.	35,789	.....	...	..	2	3	2	104
Montefiore Hospital[1-3]	New York City	H. Jacobson-J. Fried	Rad.	39,564	11,627	3,450	50	3	8	3	75
Morrisana City Hospital[1-3]	New York City	J. Fierstein	Rad.	21,288	2,429	100	20	1	1	2	105
Mount Sinai Hospital[1-3]	New York City	B. S. Wolf-S. M. Silverstone	Rad.	41,325	7,813	...	100	4	6	3	50
New York City Hospital[1-3]	New York City	P. Strax	D.R.	18,120	......	.....	...	1	2	2	104
New York Hospital[1-3]	New York City	J. A. Evans	Rad.	80,151	9,995	431	65	4	13	3	84
New York Polyclinic Medical School and Hospital[1-3]	New York City	W. H. Shehadi	Roent.	10,662	1,441	261	27	1	2	2	...
New York University-Bellevue Medical Center University Hospital[1-3]	New York City	M. Poppel	Rad.	21,050	3,113	1,607	153	1	3	3	85
Presbyterian Hospital[1]	New York City	H. W. Jacox	Rad.	103,619	19,418	...	176	4	12	3	208
Roosevelt Hospital[1-3]	New York City	A. A. Dunn	Rad.	114,550	3,180	126	4,961	2	6	3	116
St. Francis Hospital	New York City	J. J. Haggerty	D.R.	10,991	930	75	12	1	2	1	175
St. Luke's Hospital[1-3]	New York City	H. F. Hempel	Rad.	35,335	4,182	...	35	2	6	3	75
St. Vincent's Hospital[1-3]	New York City	F. F. Ruzicka, Jr.	Rad.	34,089	2,717	515	13	2	4	3	100
Sydenham Hospital[1-3]	*New York City*	*J. E. Moseley*	*Roent.*	*8,830*	*101*	*60*	*23*	*1*	*2*	*1*	*105*
United Hospital[1-3]	Port Chester, N. Y.	T. West	Roent.	16,951	3,018	29	8	1	1	1	200
Genesee Hospital[3]	Rochester, N. Y.	G. J. Baron	Roent.	20,218	2,200	146	15	1	1	3	75
Rochester General Hospital[1-3]	Rochester, N. Y.	E. F. Merrill	Rad.	24,929	5,868	1,127	58	1	3	3	100
St. Mary's Hospital[1-3]	Rochester, N. Y.	H. Forsyth-A. V. Winchell	Roent.	19,340	710	111	77	1	2	2	200
Strong Memorial-Rochester Municipal Hospital[1-3]	Rochester, N. Y.	G. H. Ramsey	Rad.	19,129	5,028	4,002	222	..	9	3	...
Ellis Hospital[1-3]	Schenectady, N. Y.	K. L. Mitton	Roent.	12,675	944	...	83	1	1	1	150
State University of New York Medical Center[1-3]	Syracuse, N. Y.	C. Hale	Roent.	34,314	5,889	...	49	2	6	3	192
Grasslands Hospital[1-3]	Valhalla, N. Y.	A. G. Debbie	Roent.	18,223	2,491	961	27	1	3	3	175
St. John's Riverside Hospital[3]	Yonkers, N. Y.	J. Miller	Roent.	10,809	992	248	15	1	1	2	150
North Carolina Memorial Hospital[1]	Chapel Hill, N. C.	E. M. Wood	Rad.	23,930	2,059	68	45	34	69	3	145
Charlotte Memorial Hospital[1]	Charlotte, N. C.	W. C. A. Sternbergh	Roent.	15,446	1,140	71	20	1	2	1	250
Duke University Hospital[1-3]	Durham, N. C.	R. J. Reeves	Rad.	61,283	9,105	590	210	4	11	3	42
Watts Hospital[1-3]	Durham, N. C.	S. P. Perry	D.R.	16,260	2,167	...	24	1	3	2	100
North Carolina Baptist Hospitals[1-3]	Winston-Salem, N. C.	J. P. Rousseau	Rad.	24,689	2,637	90	51	1	3	3	125
Bismarck Hospital[3]	Bismarck, N. Dak.	H. M. Berg	Rad.	29,146	1,992	715	57	1	3	3	300
Akron General Hospital[1-3]	Akron, Ohio	O. J. Miller, Jr.	Rad.	15,656	4,263	108	32	1	1	3	250
City Hospital[1-3]	*Akron, Ohio*	F. T. Moore	Rad.	42,170	10,786	...	..	2	4	3	250
Aultman Hospital[1-3]	Canton, Ohio	S. Larson	Roent.	21,854	2,503	834	44	1	1	2	275
Mercy Hospital[1-3]	Canton, Ohio	T. J. Dodd	D.R.	22,411	3,563	...	56	1	3	3	200
Cincinnati General Hospital[1-3]	Cincinnati	B. Felson	Rad.	44,679	5,712	262	80	4	11	3	50
Good Samaritan Hospital[1-3]	Cincinnati	J. McCarthy	Roent.	25,157	6,142	68	69	1	2	2	175
Jewish Hospital[1-3]	Cincinnati	L. Rosenberg	Rad.	22,397	2,747	813	109	1	3	3	145
City Hospital[1-3]	Cleveland	H. Hauser	Rad.	34,895	3,731	1,200	93	2	8	3	150
Cleveland Clinic Hospital[1-3]	Cleveland	C. R. Hughes	Rad.	106,364	4,000	1,500	60	4	12	3	175
Lutheran Hospital[1-3]	Cleveland	J. A. Groh	Roent.	11,650	2,521	62	9	1	3	3	162
Mount Sinai Hospital[1]	Cleveland	H. Mahrer	Roent.	24,437	3,399	20	21	1	3	3	215
St. Luke's Hospital[1]	Cleveland	D. D. Brannan	Rad.	33,137	4,067	854	28	1	3	3	120
St. Vincent Charity Hospital[1-3]	*Cleveland*	*E. J. O'Malley*	*Rad.*	*19,593*	*1,661*	...	*25*	*1*	*3*	*3*	210
University Hospitals[1-3]	Cleveland	H. L. Friedell	Rad.	49,002	8,029	560	69	2	6	3	125
Ohio State University Hospitals University Hospitals[1-3]	Columbus, Ohio.	S. W. Nelson	Rad.	49,017	15,975	1,202	306	4	12	3	150
Miami Valley Hospital[1-3]	Dayton, Ohio	G. A. Nicoll	Rad.	18,611	2,189	...	45	1	3	3	160
St. Elizabeth Hospital[1]	Dayton, Ohio	R. N. Land	D.R.	19,151	1,616	30	..	1	1	1	...
Huron Road Hospital[1-3]	East Cleveland, Ohio	W. D. Heinrich	Roent.	23,619	2,543	357	31	1	2	2	210
Elyria Memorial Hospital[1-3]	*Elyria, Ohio*	*D. A. Russell*	*D.R.*	*10,591*	*596*	...	..	1	1	1	270
Mercy Hospital[1-3]	Toledo, Ohio	M. M. Thompson, Jr.	Rad.	15,881	947	58	25	1	3	3	...
St. Vincent's Hospital[1]	Toledo, Ohio	F. C. Curtzwiler	D.R.	36,741	452	...	15	1	1	1	225
St. Elizabeth Hospital	Ohio	S. Tamarkin	Roent.	16,366	2,526	160	17	1	1	1	300
Youngstown Hospital[1]	Ohio	E. C. Baker	D.R.	35,353	8,774	...	49	1	3	2	175
University of Oklahoma Affiliated Hospital		....		......	.....	...	..	..	..	3	...
University Hospitals[1-3]	Oklahoma City	P. E. Russo	Rad.	30,564	.....	...	67	3	8	..	85
Veterans Admin. Hospital[1]	Oklahoma City	S. M. Glasser	D.R.	13,211	1,252	159	..	2	4	..	...
Wesley Hospital[1]	Oklahoma City	E. H. Kalmon	D.R.	9,498	2,122	40	42	1	1	..	225
St. John's Hospital[1-3]	Tulsa, Okla.	L. M. Pascucci	Rad.	11,260	1,559	93	..	1	1	3	...
Providence Hospital[1-3]	Portland, Ore.	S. Rees	D.R.	13,688	1,571	...	25	1	3	1	175
St. Vincent's Hospital[1-3]	Portland, Ore.	S. E. Rees	Roent.	13,204	1,307	...	..	1	3	3	175
University of Oregon Medical School Hospitals and Clinics[1-3]	Portland, Ore.	C. T. Dotter	Rad.	40,999	3,038	1,500	29	2	6	3	...
Abington Memorial Hospital[1-3]	Abington, Pa.	J. D. Zulick	Roent.	20,741	3,218	291	179	..	1	3	100
Allentown Hospital[1-3]	Allentown, Pa.	W. C. Troxell	D.R.	14,951	1,780	52	10	..	..	1	225
Sacred Heart Hospital[1-3]	Allentown, Pa.	T. Scarlett-C. L. Mengel	Rad.	10,410	5,028	1,062	560	1	1	3	225
Bryn Mawr Hospital[1-3]	Bryn Mawr, Pa.	R. S. Bromer	Rad.	2,475	4,071	449	165	1	3	3	100
George F. Geisinger Memorial Hospital[1-3]	Danville, Pa.	C. L. Hinkel	Rad.	16,279	1,421	2,000	41	1	3	3	125
Thomas M. Fitzgerald Mercy Hospital[1-3]	Darby, Pa.	B. P. Widmann-F. K. Alexander	Rad.	11,419	2,172	724	135	1	3	3	100
St. Vincent's Hospital[1-3]	Erie, Pa.	R. D. Bacon	Rad.	13,911	1,419	24	17	1	2	3	100
Albert Einstein Medical Center-Northern Division[1-3]	Philadelphia	J. Gershon-Cohen	Roent.	22,545	.....	...	38	1	3	3	150
Albert Einstein Medical Center-Southern Division[1-3]	Philadelphia	H. Isard	Rad.	13,733	2,806	...	26	3	3	3	150
American Oncologic Hospital[1-3]	Philadelphia	S. G. Castigliano	Ther. Rad.	1,779	6,523	434	69	2	2	3	250
Chestnut Hill Hospital[1-3]	Philadelphia	R. P. Barden	Roent.	8,933	1,648	346	50	1	1	2	200
Episcopal Hospital[1-3]	Philadelphia	H. Fisher	Rad.	21,441	2,539	336	32	2	2	3	150
Frankford Hospital[1-3]	Philadelphia	M. E. Woodruff	D.R.	9,697	375	6	14	5	8	1	250
Hospital[1-3]	Philadelphia	B. R. Young	Rad.	25,190	3,772	1,258	62	1	4	3	150
niversity of Pennsylvania[1-3]	Philadelphia	A. Finkelstein	Rad.	23,388	3,811	663	20	3	10	3	75
and Hospital[3]	Philadelphia	J. S. Lehman	Rad.	35,145	2,805	179	176	2	5	3	75
of Pennsylvania[1-3]	*Philadelphia*	*E. Pendergrass*	*Rad.*	*127,424*	*3,164*	*15,234*	*184*	8	24	3	...
Hospital of the Woman's Medical College of Pennsylvania[1-3]	Philadelphia	J. H. Vastine, II	Roent.	8,674	1,470	4	30	1	2	3	200
Jeanes Hospital[1-3]	Philadelphia	E. P. Pendergrass	Rad.	4,683	1,013	35	20	1	1	1	300
Jefferson Medical College Hospital[1-3]	Philadelphia	P. C. Swenson	Rad.	51,321	27,456	865	577	7	13	3	100
Nazareth Hospital[1-3]	Philadelphia	J. S. Fetter	Roent.	17,768	1,796	493	29	1	3	3	200
Pennsylvania Hospital[1-3]	Philadelphia	P. A. Bishop	Rad.	18,412	2,136	320	125	2	2	3	20
Philadelphia General Hospital[1-3]	Philadelphia	B. P. Widmann	Rad.	40,091	12,111	336	207	3	9	3	113
Presbyterian Hospital[1-3]	Philadelphia	E. L. Lame	Rad.	10,921	2,266	145	49	1	3	3	150
Temple University Hospital[1-3]	Philadelphia	W. E. Chamberlain	Rad.	36,746	6,150	108	37	5	15	3	...
Allegheny General Hospital[1]	Pittsburgh	T. Y. Childs	Roent.	27,534	4,354	461	43	3	3	2	200

Numerical and other references will be found on page 363.

25. RADIOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Mercy Hospital [1-8]	Pittsburgh	O. R. Perryman	Rad.	32,209	6,688	...	90	2	6	3	175
Montefiore Hospital [1-8]	Pittsburgh	M. Goldsmith	Roent.	15,266	3,860	428	..	2	2	3	125
Pittsburgh Medical Center [1-8]	Pittsburgh	G. W. Grier	Rad.	18,639	1,903	...	..	1	3	3	125
St. Francis General Hospital and Rehabilitation Institute [1-8]	Pittsburgh	G. H. Alexander	Rad.	21,079	2,181	30	23	1	3	3	200
Western Pennsylvania Hospital [1-8]	Pittsburgh	D. H. Rice	Roent.	19,876	3,920	517	46	1	3	2	225
Reading Hospital [1-8]	Reading, Pa.	G. W. Chamberlin	Rad.	13,752	.....	4,500	42	2	6	3	225
St. Joseph's Hospital [1-8]	Reading, Pa.	W. W. Werley-N. Carabello	Roent.	10,535	2,172	367	26	1	1	1	250
Robert Packer Hospital [1-8]	Sayre, Pa.	J. T. Littleton	Rad.	31,130	3,194	419	13	2	5	3	150
Sharon General Hospital [1-8]	Sharon, Pa.	H. A. Steiner	Roent.	13,523	1,897	...	1,750	1	1	1	250
Chester County Hospital [1-8]	West Chester, Pa.	J. Gershon-Cohen	Roent.	7,309	2,155	593	4	1	1	1	100
Rhode Island Hospital [1-8]	Providence, R. I.	L. A. Martineau	Roent.	27,559	1,977	343	..	1	2	3	100
Roger Williams General Hospital [1-8]	Providence, R. I.	R. R. Hunt	Roent.	12,101	2,470	617	63	1	1	2	200
Roper Hospital [1-8]	Charleston, S. C.	H. S. Pettitt	Rad.	25,984	5,307	47	52	1	3	3	...
Columbia Hospital [1-8]	Columbia, S. C.	G. W. Smith, Jr.	Roent.	42,800	3,318	123	34	1	1	1	175
Spartanburg General Hospital	Spartanburg, S. C.	H. E. Plenge	Rad.	11,772	2,736	454	82	2	2	3	200
Baroness Erlanger Hospital [1-8]	Chattanooga, Tenn.	C. Reavis	Rad.	20,318	4,024	310	62	2	2	2	...
Baptist Memorial Hospital [1-8]	Memphis, Tenn.	J. E. Whiteleather	Roent.	19,151	2,971	581	40	1	3	3	100
John Gaston Hospital [1-8]	Memphis, Tenn.	O. Heacock	Rad.	36,428	3,033	275	64	2	6	3	35
Methodist Hospital	Memphis, Tenn.	J. O. King	Rad.	21,468	5,199	774	17	2	5	3	100
George W. Hubbard Hospital of Meharry Medical College [1-8]	Nashville, Tenn.	G. J. Tarleton, Jr.	Rad.	995	1,172	118	111	1	3	3	125
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	H. O. Francis	Rad.	23,164	4,583	184	88	3	7	3	50
Brackenridge Hospital [1-8]	Austin, Texas	J. C. Rude	D.R.	33,882	1,219	305	35	1	1	1	200
Baylor University Hospital [1-8]	Dallas, Texas	J. E. Miller	Rad.	24,406	9,183	240	185	2	4	3	125
Methodist Hospital [1-3]	Dallas, Texas	R. H. Millwee	D.R.	11,753	955	72	53	1	1	1	125
Parkland Memorial Hospital [1-3]	Dallas, Texas	R. Clayton	Rad.	30,402	1,791	660	80	2	7	3	50
St. Paul's Hospital [1-3]	Dallas, Texas	G. D. Carlson	Rad.	11,179	1,164	...	47	1	3	2	125
University of Texas Medical Branch Hospitals [1-8]	Galveston, Texas	R. N. Cooley	Rad.	59,777	7,344	218	60	3	9	3	...
Baylor University College of Medicine Affiliated Hospitals											
Jefferson Davis Hospital [1-8]	Houston, Texas	V. P. Collins	Rad.	58,400	1,122	872	124	2	4	3	...
Methodist Hospital [1-3]	Houston, Texas	C. H. Burge	Rad.	12,912	1,716	...	16	1	3	2	120
Veterans Admin. Hospital [1-8]	Houston, Texas	H. L. Barton	Roent.	35,819	4,948	172	19	2	4	2	...
Hermann Hospital [1]	Houston, Texas	L. M. Vaughan	Rad.	36,999	4,697	176	71	1	4	3	100
St. Joseph's Hospital [1]	Houston, Texas	O. W. Yates	Rad	22,783	2,645	95	33	1	3	3	225
University of Texas M. D. Anderson Hospital and Tumor Institute [1-8]	Houston, Texas	G. H. Fletcher	Rad.	10,971	18,198	3,075	396	3	14	3	150
Baptist Memorial Hospital [1-8]	San Antonio, Texas	E. F. Lyon, Jr.	D.R.	11,330	1,946	...	86	1	2	2	150
Robert B. Green Memorial Hospital [1-8]	San Antonio, Texas	....	D R.	......	.....	...	..	..	..	2	...
Santa Rosa Hospital [3]	San Antonio, Texas	F. E. O'Neill-A. Thaggard	D.R.	13,096	1,332	...	126	1	2	2	200
Scott and White Memorial Hospitals [1-3]	Temple, Texas	C. A. Stevenson	Rad.	48,545	5,147	1,064	98	1	3	3	250
University of Utah Affiliated Hospitals		....	Rad.	......	.....	...	..	..	..	3	...
Dr. W. H. Groves Latter-Day Saints Hospital [1-8]	Salt Lake City	E. R. Crowder-P. Frederick	.....	8,430	492	26	35	1	3	..	200
Holy Cross Hospital [1-8]	Salt Lake City	R. R. Meyer	.....	7,385	1,401	...	14	1	1	..	175
St. Mark's Hospital	Salt Lake City	....	.....	......	.....	...	..	..	..	..	...
Salt Lake County General Hospital [1-8]	Salt Lake City	W. R Christensen	.....	15,595	4,450	227	..	2	6	..	135
Veterans Admin. Hospital	Salt Lake City	J. J. Wolfson	.....	9,608	.....	...	..	..	3	..	...
Bishop De Goesbriand Hospital [1-8]	Burlington, Vt.	F. Van Buskirk	Roent.	10,544	1,333	25	..	1	2	1	100
Mary Fletcher Hospital [1-3]	Burlington, Vt.	A. B. Soule, Jr.	Rad.	14,278	3,614	77	80	1	3	3	167
University of Virginia Hospital [1-8]	Charlottesville, Va.	V. W. Archer	Roent.	36,403	8,000	500	50	2	6	3	50
De Paul Hospital [1-3]	Norfolk, Va.	J. Foster	Roent.	12,612	2,545	...	24	3	3	2	200
Norfolk General Hospital [1-8]	Norfolk, Va.	P. B. Parsons	Rad.	13,953	4,418	348	103	2	4	3	125
Medical College of Virginia-Hospital Division [1-8]	Richmond, Va.	F. B. Mandeville	Rad.	38,450	.....	3,989	121	1	5	3	50
Providence Hospital [1]	Seattle	E. A. Addington	D.R.	14,789	566	227	..	1	2	2	200
Swedish Hospital [1-3]	Seattle	S. T. Cantril	Ther. Rad.	......	8,161	1,074	182	..	4	3	100
Virginia Mason Hospital [1-3]	Seattle	T. Carlile	Rad.	25,264	2,397	1,795	68	1	3	3	100
Sacred Heart Hospital [1-8]	Spokane, Wash.	M. T. Harris	Rad.	12,537	1,101	16	26	2	2	2	200
St. Mary's Hospital [1-3]	Huntington, W. Va.	H. R. Crews	Roent.	17,493	3,000	611	10	..	1	2	150
Madison General Hospital [1-3]	Madison, Wis.	R. C. Schmitz	D.R.	18,346	1,701	127	22	1	1	1	150
Methodist Hospital [1-8]	Madison, Wis.	W. L. Waskow	Roent.	10,458	1,578	301	127	1	2	2	125
University Hospitals [1]	Madison, Wis.	E. A. Pohle	Rad.	42,181	7,233	194	111	2	6	3	50
Columbia Hospital [1-8]	Milwaukee	S. A. Morton	Rad.	......	2,686	...	34	..	1	3	195
Evangelical Deaconess Hospital [1-3]	Milwaukee	A. Melamed-A. Marck	Roent.	16,419	2,242	246	12	1	1	1	250
Milwaukee County Hospital [1-8]	Milwaukee	J. L. Marks	Rad.	46,408	3,791	508	18	2	6	3	209
Milwaukee Hospital [1-3]	Milwaukee	H. W. Hefke	Rad.	23,085	2,364	...	153	1	3	3	195
St. Joseph's Hospital [1-3]	Milwaukee	G. W. Sengpiel	Roent.	21,325	4,000	...	..	1	2	3	200
St. Luke's Hospital [1-8]	Milwaukee	H. H. Wright	Roent.	13,890	4,429	247	15	1	3	3	275
Gorgas Hospital [1-3]	Ancon, C. Z.	G. F. Lull, Jr.	Roent.	19,905	700	256	5	1	2	2	345
Queen's Hospital [1-8]	Honolulu, T. H.	L. L. Buzaid	Roent.	8,618	1,163	557	7	1	3	3	125
San Juan City Hospital [1-8]	San Juan, P. R.	J. L. Becerra	Roent.	10,998	2,796	...	..	1	1	2	150

26. SURGERY

The following services have been approved for four years of training by the Council, the American Board of Surgery and the American College of Surgeons through the Conference Committee on Graduate Training in Surgery. (See additional lists of approved services, pp. 347-351)

Hospitals, 263; Assistant Residencies and Residencies, 3,232

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
UNITED STATES ARMY							
Letterman Army Hospital [1]	San Francisco	H. T. Berwald	1,065	..	2	8	...
Fitzsimons Army Hospital [1]	Denver	C. S. Lyter	692	9	..	..	...
Army Medical Center [1-3]	Washington, D. C.	R. T. Gants	1,043	6	3	14	...
Brooke Army Hospital [1-3]	San Antonio, Texas	W. F. Bowers	2,108	46	4	16	...
Tripler Army Hospital [1]	Honolulu, T. H.	G. L. Beatty	3,167	17	3	11	...

Numerical and other references will be found on page 363.

26. SURGERY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
UNITED STATES NAVY							
U. S. Naval Hospital [1]	Oakland, Calif.	R. S. Silvis	1,554	16	..	..	...
U. S. Naval Hospital [1]	San Diego, Calif.	L. G. Bell	2,993	42	..	..	...
U. S. Naval Hospital [1-3]	Bethesda, Md.	R. B. Brown	2,715	21	2	8	...
U. S. Naval Hospital [1]	Chelsea, Mass.	L. L. Haynes	1,843	12	1	4	...
U. S. Naval Hospital [1]	St. Albans, N. Y.	R. N. Grant	1,634	38	..	..	...
U. S. Naval Hospital [1]	Philadelphia	R. A. Cooper	2,796	29	..	..	...
U. S. Naval Hospital [1-3]	Portsmouth, Va.	C. F. Storey	4,332	15	2	8	...
UNITED STATES PUBLIC HEALTH SERVICE							
U. S. Public Health Service Hospital [1-3]	San Francisco	W. A. Williamson	2,678	15	1	4	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
Freedmen's Hospital [1-3]	Washington, D. C.	B. Syphax	1,038	17	3	12	...
VETERANS ADMINISTRATION							
Veterans Admin. Hospital [1-3]	Birmingham, Ala.	C. Lyons	664	14	..	..	...
Veterans Admin. Hospital [1-3]	Little Rock, Ark.	R. J. Lipin	1,492	43	3	8	...
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	J. A. Weinberg	2,080	32	3	12	...
Veterans Admin. Hospital [1-3]	*Los Angeles*	*J. D Briggs*	*2,969*	*136*	*10*	22	...
Veterans Admin. Hospital [1]	San Francisco	L. G. Brizzolara	1,247	34	4	12	...
Veterans Admin. Hospital [1-3]	Denver	B. Eiseman	2,598	56	5	16	...
Veterans Admin. Hospital	Newington, Conn.	P. W. Fenny	1,192	22	4	11	...
Veterans Admin. Hospital [1-3]	West Haven, Conn.	A. Hurwitz	551	9	6	13	...
Veterans Admin. Hospital [1-3]	Washington, D. C.	J. G. Lee	1,366	41	4	7	...
Veterans Admin. Hospital [1]	Atlanta, Ga.	J. C. Thoroughman	1,730	33	5	14	...
Veterans Admin. Hospital [1]	Hines, Ill.	C. B. Puestow	2,436	172	18	58	...
Veterans Admin. Hospital [1]	Indianapolis	J. C. Finneran	1,166	27	2	5	...
Veterans Admin. Hospital [1]	Des Moines, Iowa	L. T. Palumbo	2,648	36	3	12	...
Veterans Admin. Hospital [1-3]	Iowa City	E. S. Brintnall	1,769	44	6	16	...
Veterans Admin. Hospital [1-3]	Wadsworth, Kan.	C. B.	496	31	3	8	...
Veterans Admin. Hospital [1-3]	Louisville, Ky.	J. E.	1,234	87	6	18	...
Veterans Admin. Hospital [1-3]	New Orleans	L. K.	1,215	29	4	10	...
Veterans Admin. Hospital [1-3]	Fort Howard, Md.	J. M. Miller	1,901	15	2	6	...
Veterans Admin. Hospital [1-3]	Perry Point, Md.	R. T. Shackelford	992	17	2	6	...
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain)	H. H. Faxon	2,787	61	8	24	...
Veterans Admin. Hospital [1-3]	Dearborn, Mich.	C. G. Johnston	3,441	102	8	25	...
Veterans Admin. Hospital [1-3]	Minneapolis	D. J. Ferguson	1,906	52	6	19	...
Veterans Admin. Hospital [1-3]	Kansas City, Mo.	G. A. Higgins	1,989	28	2	8	...
Veterans Admin. Hospital [1-3]	St. Louis	K. B. Coldwater	1,024	22	4	10	...
Veterans Admin. Hospital [1-3]	Omaha	W. P. Kleitsch	1,417	26	4	9	...
Veterans Admin. Hospital	Albuquerque, N. M.	W. A. Childs	.....	..	5	13	...
Veterans Admin. Hospital [1-3]	Albany, N. Y.	J. A. Nelson	1,890	45	4	13	...
Veterans Admin. Hospital [1-3]	Brooklyn	J. J. Cincotti	2,163	34	6	18	...
Veterans Admin. Hospital [1-3]	Buffalo	W. M Chardack	1,817	56	4	14	...
Veterans Admin. Hospital [1-3]	New York City (Bronx)	P. K. Sauer	2,377	47	4	16	...
Veterans Admin. Hospital [1-3]	Cleveland	C. L. Gogbill	1,400	27	8	16	...
Veterans Admin. Hospital [1-3]	Dayton, Ohio	W. G. Eckman	3,971	86	5	18	...
Veterans Admin. Hospital [1]	Oklahoma City	F. A. Quenzer	1,591	58	3	10	...
Veterans Admin. Hospital [1-3]	Portland, Ore.	R. A. Wise	1,614	18	4	16	...
Veterans Admin. Hospital [1-3]	Philadelphia	W. G. Nichols, Jr.	974	59	3	10	...
Veterans Admin. Hospital [1]	Pittsburgh	W. A Altenhoff	798	46	5	18	...
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	R. F. Bowers	3,708	42	8	21	...
Veterans Admin. Hospital [1]	Nashville, Tenn.	R. I. Carlson	2,614	43	6	22	...
Veterans Admin. Hospital [1-3]	Dallas, Texas	W. H. Pickett	1,411	41	8	16	...
Veterans Admin. Hospital [1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)					
Veterans Admin. Hospital [1-3]	McKinney, Texas	J. P. North	1,563	31	4	10	...
Veterans Admin. Hospital [1-3]	Salt Lake City	J. A. Gubler	1,043	15	2	8	...
Veterans Admin. Hospital [1]	White River Junction, Vt.	(See Dartmouth Medical Center, Hanover, N. H.)					
Veterans Admin. Hospital [1-3]	Richmond, Va.	R. MacDonald	1,700	24	2	8	...
Veterans Admin. Hospital [1-3]	Seattle	J. T. Payne	1,302	76	5	13	...
Veterans Admin. Hospital [1-3]	Milwaukee (Wood)	M. B. Smith	1,563	68	5	16	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	C. Lyons	3,761	39	7	22	108
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	J. M. Slaughter	1,665	15	3	6	225
University Hospital [1-3]	Little Rock, Ark.	J. H. Growdon	771	24	4	14	145
General Hospital of Fresno County [1]	Fresno, Calif.	F. I. Gilliland	1,281	57	2	6	300
Los Angeles County General Hospital [1]	Los Angeles	L. Brewer, III	4,055	132	8	13	200
Highland-Alameda County Hospital [1-3]	Oakland, Calif.	T. C. Lawson	2,094	48	8	16	195
Kaiser Foundation Hospital [1-3]	Oakland, Calif.	A. L. Baritell	2,157	33	6	12	175
Mount Zion Hospital [1-3]	San Francisco	A. L. Brown	1,599	10	2	6	...
San Francisco Hospital							
Stanford University Service	San Francisco	C. Mathewson	671	16	2	4	175
University of California Service [3]	San Francisco	L. Goldman	1,469	14	4	6	175
Stanford University Hospitals [1-3]	San Francisco	E. F. Holman	2,277	87	3	11	80
University of California Hospital [1-3]	San Francisco	H. G. Bell	1,606	21	4	14	87
Santa Clara County Hospital [1]	San Jose, Calif.	J. B. Miller	1,364	108	1	7	...
Stanford University Service	San Francisco	H. V Findlay	1,019	10	4	9	140
Harbor General Hospital [1-3]	Torrance, Calif.	S. Pearson	1,275	12	4	14	200
University of Colorado Medical Center							
Colorado General Hospital [1-3]	Denver	H. Swan	1,332	59	4	15	150
Denver General Hospital [1-3]	Denver	D. H. Watkins	1,094	68	..	..	...
St. Vincent Hospital [1-3]	Bridgeport, Conn.	W. Curley, Jr.	6,246	47	2	8	100
Hartford Hospital [1-3]	Hartford, Conn.	P. G. McLellan	5,622	58	9	22	50
New Britain General Hospital [1-3]	New Britain, Conn.	B. B. Clark	2,532	..	1	4	200
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	G. E. Lindskog-C. C. Bishop	5,191	53	4	16	50
Delaware Hospital [1-3]	Wilmington, Del.	C. L. Munson	5,980	75	2	5	160
Memorial Hospital [1-3]	Wilmington, Del.	J. C. Pierson	3,751	27	1	4	175
Central Dispensary and	C.	J. H. Lyons	2,571	20	4	10	225
District of Columbia G	C.	B. Blades-R. Coffey	1,457	33	2	8	143
Garfield Memorial Hospital [1-3]	Washington, D. C.	W. W. Chase	1,662	25	1	6	210
Georgetown University Hospital [3]	Washington, D. C.	R. J. Coffey	3,517	60	8	22	20
George Washington University Hospital [1-3]	Washington, D. C.	B. Blades	6,515	35	5	11	150
Providence Hospital [1-3]	Washington, D. C.	L. Goffredi	3,531	49	1	4	200
Jackson Memorial Hospital [1-3]	Miami, Fla.	J. J. Farrell	3,949	68	8	14	75

Numerical and other references will be found on page 363.

26. SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Grady Memorial Hospital [1-3]	Atlanta, Ga.	I. A. Ferguson	3,963	57	12	29	20
Piedmont Hospital [1]	Atlanta, Ga.	F. W. McRae	3,131	17	1	4	160
University Hospital [1-3]	Augusta, Ga.	J. H. [illegible]	2,623	18	2	6	160
Emory University Hospital [1]	Emory University, Ga.	J. D. [illegible]	4,464	21	6	7	190
Cook County Hospital [1-3]	Chicago	K. A. [illegible]	15,427	155	20	20	...
Mercy Hospital [1-3]	Chicago	H. A. Oberhelman	2,079	9	4	10	100
Michael Reese Hospital [1-3]	Chicago	N. N. Crohn	2,720	30	2	6	50
Mount Sinai Hospital [1-3]	Chicago	L. J. Aries	3,921	30	2	5	100
Northwestern University Medical Center							
Chicago Wesley Memorial Hospital [1-3]	Chicago	W. G. Maddock	3,122	52	2	7	50
Passavant Memorial Hospital [1-3]	Chicago	L. Davis	1,523	15	3	3	50
Veterans Admin. Research Hospital [1]	Chicago	(See [illegible] ration Research Hospital on Page 349)					
Evanston Hospital [1-3]	Evanston, Ill.	(See [illegible] l in following section)					
Presbyterian Hospital [1]	Chicago	E. J. [illegible]	2,697	43	6	12	125
St. Luke's Hospital [1-3]	Chicago	W. E. van Hazel	3,133	38	8	16	50
University of Chicago Clinics [1-3]	Chicago	L. R. Dragstedt	2,635	110	6	18	175
University of Illinois Research and Educational Hospitals [1]	Chicago	W. H. Cole	1,490	40	6	15	...
Indianapolis General Hospital [1-3]	Indianapolis	F. W. Taylor	1,684	24	2	8	165
Indiana University Medical Center [1]	Indianapolis	H. B. Shumacker, Jr.	1,188	50	5	14	165
[illegible] [3]	Des Moines, Iowa	T. D Throckmorton	3,546	35	2	6	150
[illegible]	Iowa City	R. T. Tidrick	2,660	98	8	22	118
[illegible] al Center [1-3]	Kansas City, Kan.	F. Allbritten	1,305	59	4	17	125
[illegible] [1-3]	Louisville, Ky.	R. J. Noer	1,946	41	6	20	83
Charity Hospital of Louisiana							
Independent Unit [1]	New Orleans	L. J. O'Neil	2,110	53	3	9	100
Louisiana State University Unit [1]	New Orleans	J. D. Rives	3,199	92	5	19	100
Tulane University Unit [1]	New Orleans	A. Ochsner	3,172	100	5	19	100
Confederate Memorial Medical Center [1]	Shreveport, La.	P. D. Abramson	2,311	53	6	16	125
Maine General Hospital [1]	Portland, Maine	I. M. Webber	1,792	..	2	8	100
Baltimore City Hospitals [1-3]	Baltimore	O. C. Brantigan	1,795	40	6	18	75
Church Home and Hospital [1-3]	Baltimore	C. R. Edwards	3,616	20	3	7	200
Franklin Square Hospital [1-3]	Baltimore	H. E. Wilgis	2,897	11	3	6	225
Johns Hopkins Hospital [1-3]	Baltimore	A. Blalock	3,315	75	..	11	20
Mercy Hospital [1-3]	Baltimore	W. D. Wise	4,387	87	2	6	325
Sinai Hospital [1-3]	Baltimore	A. M. Seligman	2,559	19	3	11	110
Union Memorial Hospital [1-3]	Baltimore	G. G. Finney	5,207	43	4	8	115
University Hospital [1-3]	Baltimore	C. R Edwards	3,139	36	6	19	50
Beth Israel Hospital [1-3]	Boston	J. Fine	2,206	30	4	12	42
Boston City Hospital							
I—Surgical Service [1-3]	Boston	O. G. Childs, III	2,780	39	8	20	112
III—Surgical Service [1-3]	Boston	J. J. Byrne	2,717	33	8	20	112
V—Surgical Service [1-3]	Boston	C. C. Lund	2,535	73	8	20	112
Carney Hospital [1-3]	Boston	W. E. Browne-A. M. Fraser	3,933	38	4	9	125
Massachusetts General Hospital [1-3]	Boston	E. D. Churchill	6,625	113	8	25	800
Massachusetts Memorial Hospitals [1-3]	Boston	R. Smithwick	1,708	29	5	28	25
New England Center Hospital [1-3]	Boston	A. A. Thibodeau	2,162	31	6	16	83
Peter Bent Brigham Hospital [1-3]	Boston	F. D. Moore	3,126	83	6	21	25
St. Elizabeth's Hospital [1-3]	Boston	J. W. Spellman	5,354	31	3	8	125
Quincy City Hospital [1-3]	Quincy, Mass.	J. M. McGowan	2,385	37	1	3	162
Springfield Hospital [1-3]	Springfield, Mass.	J L. Smead	6,291	61	6	14	100
Memorial Hospital [1-3]	Worcester, Mass.	B. C. Wheeler	2,019	32	2	6	200
St. Vincent Hospital [1-3]	Worcester, Mass.	E. L. Richmond	5,588	32	3	7	175
St. Joseph Mercy Hospital [1-3]	Ann Arbor, Mich.	E. T. Thieme	1,394	23	4	7	200
University Hospital [1-3]	Ann Arbor, Mich.	F. A. Coller	2,266	79	14	29	145
Grace Hospital [1-3]	Detroit	R. P. Reynolds	8,817	118	4	16	225
Harper Hospital [1-3]	Detroit	E. A. Osius	3,980	46	12	21	225
Henry Ford Hospital [1-3]	Detroit	L. S. Fallis	9,525	115	20	50	225
Receiving Hospital [1-3]	Detroit	C. G. Johnston	5,461	139	6	22	270
Wayne County General Hospital and Infirmary [1-3]	Eloise, Mich.	W. L. Sherman	7,000	103	4	14	279
Hurley Hospital [1]	Flint, Mich.	G. J. Curry	6,524	39	2	8	325
Butterworth Hospital [1-3]	Grand Rapids, Mich.	M. M. Tidey	7,057	45	2	7	225
Highland Park General Hospital [1-3]	Highland Park, Mich.	W. McClure	1,587	14	2	8	308
Minneapolis General Hospital [1-3]	Minneapolis	O. J. Campbell	876	72	6	14	182
University of Minnesota Hospitals [1-3]	Minneapolis	O. H. Wagensteen	1,760	114	6	29	162
Mayo Foundation [1-3]	Rochester, Minn.		12,582	135	55	163	150
Ancker Hospital [1-3]	St. Paul	V. P. Hauser	1,792	87	2	8	181
Charles T. Miller Hospital [1]	St. Paul	W. P. Ritchie	1,387	12	1	3	185
Kansas City General Hospital No. 1 [1-3]	Kansas City, Mo.	R. R. Coffey	1,073	32	2	8	150
Barnes Hospital [1-3]	St. Louis	C. A. Moyer	2,812	75	15	29	50
Homer G. Phillips Hospital [1-3]	St. Louis	R. Elman	2,732	87	16	28	190
Jewish Hospital [1-3]	St. Louis	M. D. Pareira	2,763	32	4	8	100
Missouri Pacific Hospital [3]	St. Louis	R. A. Weir	3,707	28	4	10	200
St. Louis City Hospital [1-3]	St. Louis	C. A. McFee-L. V. Mulligan	3,138	83	4	15	190
St. Mary's Group of Hospitals [1-3]	St. Louis	C. R. Hanlon	2,746	57	4	13	100
Creighton [illegible]	Omaha	H. H. McCarthy	4,281	45	2	6	175
University [illegible]	Omaha	H. H. Davis	518	14	2	8	...
Dartmouth [illegible]	Hanover, N. H.		2,057	42	5	17	...
Mary Hitchcock Memorial Hospital	Hanover, N. H.	R. E. Wiseman	.....	..	..	..	...
Veterans Admin. Hospital	White River Junction, Vt.	W. B. Crandell	.....	..	..	..	...
Newark Beth Israel Hospital [1-3]	Newark, N. J.	E. V. Parsonnet	5,815	50	1	4	75
Albany Hospital [1-3]	Albany, N. Y.	E. H. Campbell	3,308	67	4	11	...
Brooklyn Hospital [1-3]	Brooklyn	W. H. Field	2,895	..	4	10	...
Coney Island Hospital [1-3]	Brooklyn	J. E. Hammett	2,464	38	2	8	105
Jewish Hospital [1-3]	Brooklyn	L. Berger	3,741	29	5	8	75
Kings County Hospital							
University Service [1-3]	Brooklyn	C. Dennis	4,105	57	5	14	104
Long Island College Hospital [1-3]	Brooklyn	E. J. Browder	2,804	32	2	6	75
Maimonides Hospital [1-3]	Brooklyn	O. B. Ripstein	3,019	32	5	13	35
Methodist Hospital [1-3]	Brooklyn	C. D. Sawyer	2,126	29	2	5	175
Wyckoff Heights Hospital [1-3]	Brooklyn	P. Zoller	2,130	8	3	12	100
Buffalo General Hospital [1-3]	Buffalo	J. R. Paine	3,275	52	4	13	175
Edward J. Meyer Memorial Hospital [1]	Buffalo	J. D. Stewart	1,691	55	2	10	179
Millard Fillmore Hospital [1-3]	Buffalo	H. N. Kenwell	4,165	25	3	10	255
Sisters of Charity Hospital [1-3]	Buffalo	J. C. Brady	0,950	71	2	8	210
Mary Imogene Bassett Hospital [1-3]	Cooperstown, N. Y.	M. A. McIver	1,251	15	1	4	145
Flushing Hospital and Dispensary [1-3]	Flushing, N. Y.	C. N. Baker	4,839	26	1	3	150
Meadowbrook Hospital [1-3]	Hempstead, N. Y.	J. N. Shell	2,180	76	3	10	225
Queens Hospital Center [1-3]	Jamaica, N. Y.	C. L. Davidson	3,275	132	2	6	105

Numerical and other references will be found on page 363.

26. SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Nassau Hospital[1-3]	Mineola, N. Y.	W. Freese	3,309	16	1	4	170
Bellevue Medical Center							
Division I-Columbia University[1-3]	New York City	K. Lewis	2,015	22	6	13	105
Division II-Cornell University[1-3]	New York City	C. W. Holman	2,372	51	2	14	71
Division III-New York University College of Medicine[1-3]	New York City	J. Mulholland	2,681	42	8	19	105
Division IV-New York University Post-Graduate Medical School[1-3]	New York City	J. W. Hinton	2,179	38	2	10	105
Beth Israel Hospital[1-3]	New York City	L. Ginzburg	2,112	17	2	4	120
Flower and Fifth Avenue Hospitals[1-3]	New York City	J. M. Winfield	4,142	39	6	7	...
Harlem Hospital[1-3]	New York City	A. D. Maynard	1,269	21	4	12	...
Lenox Hill Hospital[1-3]	New York City	F. M. Donehue-H. C. Maier	3,245	30	2	8	180
Lincoln Hospital[1-3]	New York City	F. H. Amendola	3,017	21	4	10	105
Metropolitan Hospital[1-3]	New York City	J. M. Winfield	1,952	30	1	6	104
Montefiore Hospital[1-3]	New York City	*E. Hurwitt*	.....	76	4	11	75
Mount Sinai Hospital[1-3]	New York City	M. Ravitch	4,529	63	12	19	50
New York Hospital[1-3]	New York City	F. Glenn	4,652	98	17	23	84
New York Polyclinic Medical School and Hospital[1-3]	New York City	R. E. Brennan	3,808	33	3	12	...
Presbyterian Hospital[1]	New York City	G. H. Humphreys, II	3,780	59	7	28	203
Roosevelt Hospital[1-3]	New York City	H. A. Patterson-F. H. Amendola	2,732	50	6	18	116
St. Clare's Hospital[1-3]	New York City	J. L. Madden	3,474	32	2	8	125
St. Luke's Hospital[1-3]	New York City	H. A. Zintel	3,966	40	4	10	75
St. Vincent's Hospital[1-3]	New York City	L. M. Rousselot	5,503	81	6	16	100
Genesee Hospital[3]	Rochester, N. Y.	S. J. Stabins	3,785	57	2	7	75
Rochester General Hospital[1-3]	Rochester, N. Y.	D. C. Houghton	3,590	61	4	12	100
St. Mary's Hospital[1-3]	Rochester, N. Y.	N. J. Pfaff	6,794	56	4	10	200
Strong Memorial-Rochester Municipal Hospital[1-3]	Rochester, N. Y.	W. J. M. Scott	309,888	128	8	23	...
State University of New York Medical Center[1-3]	Syracuse, N. Y.	R. O. Gregg	8,188	120	10	22	192
Grasslands Hospital[1-3]	Valhalla, N. Y.	G. C. Adie	551	41	2	5	175
White Plains Hospital[1-3]	White Plains, N. Y.	E. G. Ramsdell	3,336	32	1	4	175
North Carolina Memorial Hospital[1]	Chapel Hill, N. C.	N. Womack	705	18	6	16	145
Duke University Hospital[1-3]	Durham, N. C.	D. Hart	2,034	21	5	16	67
North Carolina Baptist Hospitals[1-3]	Winston-Salem, N. C.	H. H. Bradshaw	1,605	16	3	15	125
Akron General Hospital[1-3]	Akron, Ohio	R. T. Allison	1,536	12	4	13	250
City Hospital[1-3]	Akron, Ohio	S. A. Schlueter	3,040	..	4	13	250
St. Thomas Hospital[1-3]	Akron, Ohio	R. M. Bartlett	3,546	24	2	7	250
Mercy Hospital[1-3]	Canton, Ohio	S. Hill	6,322	20	2	7	200
Cincinnati General Hospital[1-3]	Cincinnati	W. A. Altemeier	2,514	74	10	31	50
City Hospital[1-3]	Cleveland	F. A. Simeone	1,966	74	11	24	150
Cleveland Clinic Hospital[1-3]	Cleveland	R. S. Dinsmore	2,336	18	8	21	175
Lutheran Hospital[1-3]	Cleveland	J. H. Lazzari	3,878	35	2	6	162
Mount Sinai Hospital[1]	Cleveland	S. O. Freedlander	5,133	31	5	11	215
St. John's Hospital[1-3]	Cleveland	F. T. Gallagher	2,156	12	2	6	170
St. Luke's Hospital[1]	Cleveland	D. M. Glover	4,138	40	2	8	120
St. Vincent Charity Hospital[1-3]	Cleveland	E. P. Neary	6,858	55	5	13	210
University Hospitals[1-3]	Cleveland	W. D. Holden	4,928	72	8	24	125
Ohio State University Hospitals							
University Hospital[1-3]	Columbus, Ohio	R. M. Zollinger	3,985	66	5	24	150
Lakewood Hospital[1-3]	Lakewood, Ohio	N. W. Thiessen	1,792	19	4	8	200
St. Elizabeth Hospital[1-3]	Youngstown, Ohio	J. A. Renner	1,722	14	2	7	300
University Hospitals[1-3]	Oklahoma City	F. M. Lingenfelter	1,353	24	2	8	85
St. Vincent's Hospital[1-3]	Portland, Ore.	W. C. Foster	5,765	31	3	12	175
University of Oregon Medical School Hospitals and Clinics[1-3]	Portland, Ore.	W. K. Livingston	1,226	68	2	8	85
Abington Memorial Hospital[1-3]	Abington, Pa.	C. M. Smyth	2,706	40	1	4	100
George F. Geisinger Memorial Hospital[1-3]	Danville, Pa.	H. L. Foss	2,234	15	1	4	125
Harrisburg Hospital[1-3]	Harrisburg, Pa.	C. E. Moore	3,520	42	1	4	250
Germantown Dispensary and Hospital[1-3]	Philadelphia	S. D. Weeder	3,740	55	2	4	150
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	H. R. Hawthorne	1,707	19	2	8	...
Hahnemann Medical College and Hospital[3]	Philadelphia	W. L. Martin	3,086	27	3	12	75
Hospital of the University of Pennsylvania[1-3]	Philadelphia	I. S. Ravdin	5,208	95	10	29	125
Hospital of the Woman's Medical College of Pennsylvania[1-3]	Philadelphia	L. K. Ferguson	1,503	16	1	4	110
Jefferson Medical College Hospital[1-3]	Philadelphia	T. A. Shallow-J.H. Gibbon	3,067	42	7	24	...
Lankenau Hospital[1-3]	Philadelphia	J. M. Deaver-G. C. Engel	2,318	18	2	6	100
Pennsylvania Hospital[1-3]	Philadelphia	A. A. Walkling	1,338	35	7	7	20
Temple University Hospital[1-3]	Philadelphia	W. E. Burnett	2,668	45	3	12	...
Allegheny General Hospital[1]	Pittsburgh	J. A. Heberling	8,192	90	4	4	200
Mercy Hospital[1-3]	Pittsburgh	F. H. Bragdon	3,832	13	4	16	175
Pittsburgh Medical Center[1-3]	Pittsburgh	S. P. Harbison	1,751	9	4	11	125
Western Pennsylvania Hospital[1-3]	Pittsburgh	G. V. Foster	2,748	125	2	8	225
Robert Packer Hospital[1-3]	Sayre, Pa.	D. Guthrie	3,546	38	2	6	150
York Hospital	York, Pa.	J. F. Bacon	5,677	46	1	4	225
Rhode Island Hospital[1-3]	*Providence, R. I.*	J. M. Beardsley	4,610	62	10	16	100
Roper Hospital[1-3]	Charleston, S. C.	F. E. Kredel	2,150	17	3	7	...
Baptist Memorial Hospital[1-3]	Memphis, Tenn.	R. M. Miles	6,273	32	2	7	100
John Gaston Hospital[1-3]	Memphis, Tenn.	H. Wilson	2,520	34	2	12	35
George W. Hubbard Hospital of Meharry Medical College[1-3]	Nashville, Tenn.	M. Walker	1,931	18	3	12	125
Nashville General Hospital[1-3]	Nashville, Tenn.	H. H. Shoulders	1,476	23	2	6	175
St. Thomas Hospital[1-3]	Nashville, Tenn.	J. C. Gardner	5,636	26	2	8	...
Vanderbilt University Hospital[1-3]	Nashville, Tenn.	H. W. Scott, Jr.	2,262	33	4	14	50
Baylor University Hospital[1-3]	Dallas, Texas	J. W. Duckett	3,079	18	3	9	125
Parkland Memorial Hospital[1-3]	Dallas, Texas	B. Wilson	1,388	31	4	19	50
University of Texas Medical Branch Hospitals[1-3]	Galveston, Texas	R. M. Moore	1,592	34	6	18	...
Baylor University College of Medicine Affiliated Hospitals							
Jefferson Davis Hospital[1-3]	Houston, Texas	M. E. DeBakey	1,796	74	6	16	...
Methodist Hospital[1-3]	Houston, Texas	L. L. D. Tuttle	2,041	13	3	4	120
Veterans Admin. Hospital[1-3]	Houston, Texas	O. Creech, Jr.	1,723	64	5	15	...
Salt Lake County General Hospital[1-3]	Salt Lake City	P. B. Price	1,018	49	3	11	125
University of Virginia Hospital[1-3]	Charlottesville, Va.	W. H. Muller	2,201	25	7	15	50
Chesapeake and Ohio Hospital[1-3]	Clifton Forge, Va.	J. M. Emmett	5,304	29	3	8	150
Norfolk General Hospital[1-3]	Norfolk, Va.	C. E. Davis	2,651	22	4	10	125
Medical College of Virginia-Hospital *Division*[1-3]	Richmond, Va.	I. A. Bigger	5,212	66	9	24	50
King County Hospital Unit No. 1 (Harborview)[1]	Seattle	H. N. Harkins	1,633	92	5	12	110
Virginia Mason Hospital[1-3]	Seattle	J. W. Baker	4,137	62	3	11	100
University Hospitals[1]	Madison, Wis.	E. R. Schmidt	2,712	93	4	16	50
Milwaukee County Hospital[1-3]	Milwaukee	C. F. Conroy	5,903	75	9	21	200
Milwaukee Hospital[1-3]	Milwaukee	C. S. Rife	4,104	35	1	5	195
San Juan City Hospital[1-3]	San Juan, P. R.	J. N. Benitez	2,102	35	2	6	150

Numerical and other references will be found on page 363.

26. SURGERY—Continued

The following services have been approved for three years of training by the Council, the American Board of Surgery and the American College of Surgeons through the Conference Committee on Graduate Training in Surgery. (See also additional lists of approved services, pp. 343-346 and 349-351)

Hospitals, 225; Assistant Residencies and Residencies, 1,425

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
UNITED STATES ARMY							
William Beaumont Army Hospital	El Paso, Texas	G. F. Peer	9,658	43	3	6	...
UNITED STATES NAVY							
U. S. Naval Hospital[1-3]	Great Lakes, Ill.	L. L. Bean	1,946	17	1	3	...
UNITED STATES PUBLIC HEALTH SERVICE							
U. S. Public Health Service Hospital[1-3]	New Orleans	J. L. Elliott	2,083	22	1	3	...
U. S. Public Health Service Hospital[1]	Baltimore	H. D. Fishburn	3,020	54	2	6	...
U. S. Public Health Service Hospital	Boston	O. C. Williams	1,788	8	1	3	...
U. S. Public Health Service Hospital[1-3]	Staten Island, N. Y.	J. D. Lane, Jr.	5,422	56	4	12	...
U. S. Public Health Service Hospital	Seattle	P. E. Walker	2,679	27	1	5	...
VETERANS ADMINISTRATION							
Veterans Admin. Hospital[1]	Tuskegee, Ala.	A. G. Yancey	1,136	23	3	8	...
Veterans Admin. Hospital[1-3]	Coral Gables, Fla.	M. H. Todd	2,565	57	5	13	...
Veterans Admin. Hospital[1]	Augusta, Ga.	C. M. Rhode	893	17	2	6	...
Veterans Admin. West Side Hospital[1-3]	Chicago	M. I. Gibbel	2,748	24	6	18	...
Veterans Admin. Hospital[1-3]	Wichita, Kan.	A. H. Hinshaw	1,516	25	3	4	...
Veterans Admin. Hospital[1-3]	Lincoln, Neb.	B. R. Walske	1,320	22	2	6	...
Veterans Admin. Hospital[1-3]	East Orange, N. J.	A. H. Levy	950	59	3	12	...
Veterans Admin. Hospital[1-3]	Providence, R. I.	P. Cooper	2,711	22	6	12	...
Veterans Admin. Hospital	Columbia, S. C.	K. M. Lippert	1,523	19	2	5	...
Veterans Admin. Hospital[1-3]	Martinsburg, W. Va.	I. Harrison	1,472	27	3	8	...
Veterans Admin. Hospital[3]	San Juan, P. R.	L. A. Passalacqua	.....	..	2	6	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Carraway Methodist Hospital[1-3]	Birmingham, Ala.	C. N. Carraway-B. Carraway	872	7	2	5	250
City Hospital	Mobile, Ala.	E. B. Frazer	1,053	44	3	3	225
Maricopa County General Hospital[1-3]	Phoenix, Ariz.	M. Wood	750	12	1	5	300
Kern General Hospital[1]	Bakersfield, Calif.	R. F. Foote	1,427	35	4	10	325
Herrick Memorial Hospital[1-3]	Berkeley, Calif.	S. H. Babington	3,155	26	1	3	175
San Joaquin General Hospital[1-3]	French Camp, Calif.	W. Brock	866	23	3	7	235
California Hospital[1-3]	Los Angeles	W. H. Olds	2,633	18	7	19	150
Cedars of Lebanon Hospital[1-3]	Los Angeles	D. State-D. Rosenblum	2,168	13	4	8	150
Hospital of the Good Samaritan[1-3]	Los Angeles	G. K. Smith	2,982	7	2	7	200
Queen of Angels Hospital[1-3]	Los Angeles	D. Ross	3,325	45	1	3	150
St. Vincent's Hospital[3]	Los Angeles	W. P. Kroger	4,862	10	1	3	200
White Memorial Hospital[1-3]	Los Angeles	A. I. Kugel	1,352	18	2	4	146
Mercy Hospital[1]	San Diego, Calif.	J. J. O'Hara	7,734	32	2	5	200
San Diego County General Hospital[1-3]	San Diego, Calif.	A. H. Lorch	755	18	4	7	150
St. Joseph's Hospital[1-3]	San Francisco	G. F. Cushman	2,464	10	1	3	150
St. Mary's Hospital[1-3]	San Francisco	E. Butler	4,233	18	3	6	150
Southern Pacific General Hospital[1-3]	San Francisco	V. M. Strange	1,273	7	3	7	150
Mercy Hospital[1-3]	Denver	J. R. Blair	7,031	16	2	5	225
Presbyterian Hospital[1-3]	Denver	K. C. Sawyer	1,855	15	1	3	150
St. Anthony Hospital[1-3]	Denver	R. G. Howlett	1,540	10	1	3	...
St. Joseph's Hospital[1-3]	Denver	F. R. Harper	5,984	53	1	4	150
St. Luke's Hospital[1-3]	Denver	G. Buck	7,809	140	2	6	150
Bridgeport Hospital[1-3]	Bridgeport, Conn.	I. L. Harshbarger	2,552	26	1	4	240
St. Francis Hospital[1-3]	Hartford, Conn.	L. A. St. John	4,243	43	1	3	100
Hospital of St. Raphael[3]	New Haven, Conn.	O. Pelliccia	2,643	..	4	11	125
Waterbury Hospital[1]	Waterbury, Conn.	A. E. Herrmann	4,276	80	1	4	225
Doctors Hospital[1-3]	Washington, D. C.	C. S. White	4,915	37	1	3	150
Duval Medical Center[1-3]	Jacksonville, Fla.	K. A. Morris	2,342	60	2	5	150
St. Vincent's Hospital[1-3]	Jacksonville, Fla.	F. Waas	3,382	25	5	11	135
Mount Sinai Hospital[1-3]	Miami Beach, Fla.	R. M. Fleming	5,240	41	1	3	250
Crawford W. Long Memorial Hospital[1-3]	Atlanta, Ga.	C. E. Holloway	5,215	19	6	9	110
Georgia Baptist Hospital[1-3]	Atlanta, Ga.	W. S. Dorough	9,250	29	2	7	290
St. Joseph's Infirmary[1-3]	Atlanta, Ga.	D. Shepard	3,354	28	2	6	165
American Hospital[1-3]	Chicago	M. Thorek-P. Thorek	2,453	61	5	5	...
Augustana Hospital[1-3]	Chicago	N. M. Percy	3,627	42	5	10	150
Grant Hospital[1-3]	Chicago	C. K. Solander	1,731	12	1	2	225
Illinois Central Hospital[1-3]	Chicago	C. O. Guy	3,099	35	3	3	200
Illinois Masonic Hospital[1-3]	Chicago	P. Shambaugh	2,306	34	2	6	115
Lutheran Deaconess Home and Hospital[3]	Chicago	J. D. Koucky	3,115	22	1	3	200
Provident Hospital[1-3]	Chicago	E. E. Hasbrouck	1,397	12	1	3	200
St. Joseph Hospital[1-3]	Chicago	F. B. McCarty	2,038	7	1	3	200
St. Mary of Nazareth Hospital[1]	Chicago	E. H. Warszewski	4,046	9	3	6	150
Evanston Hospital[1-3]	Evanston, Ill.	J. M. Dorsey	1,661	11	1	3	...
St. Francis Hospital[1-3]	Evanston, Ill.	D. P. Slaughter	4,897	42	3	8	175
West Suburban Hospital[3]	Oak Park, Ill.	R. F. Sharer	3,099	66	3	6	225
Clinic Hospital[1-3]	Bluffton, Ind.	H. D. Caylor	758	8	1	3	300
Methodist	... Indianapolis	P. K. Cullen	3,926	29	2	6	273
St.	... Indianapolis	W. D. Gatch	5,326	23	1	4	275
St.	Lafayette, Ind.	M. J. Eaton	1,483	13	2	5	175
St.	ansas City, Kan.	M. V. Laing	3,137	102	1	4	225
Wes	Wichita, Kan.	A. E. Hiebert	5,784	8	1	3	150
St. Joseph Hospital[1-3]	Lexington, Ky.	F. M. Massie	1,882	23	3	8	210
St. Joseph Infirmary[1-3]	Louisville, Ky.	J. Harter	6,723	47	2	6	185
Ochsner Foundation Hospital[1]	New Orleans	A. Ochsner	1,202	14	7	21	200
Southern Baptist Hospital[1]	New Orleans	J. K. Stone	9,183	41	2	4	225
Touro Infirmary[1]	New Orleans	I. W. Kaplan	4,505	39	2	6	100
Lutheran Hospital[1-3]	Baltimore	W. E. Gilmore	2,312	18	3	6	220
Maryland General Hospital[1-3]	Baltimore	W. M. Firor	2,688	25	3	6	225
Provident Hospital and Free Dispensary[1-3]	Baltimore	S. McLanahan	1,087	15	3	8	150
St. Agnes Hospital[1-3]	Baltimore	G. Govatos	2,988	28	2	5	125
South Baltimore General Hospital[1-3]	Baltimore	G. H. Yeager	3,091	20	4	10	150
Prince George's General Hospital	Cheverly, Md.	S. Schwartzbach	4,687	24	2	6	...
Beverly Hospital	Beverly, Mass.	R. E. Alt	2,215	42	2	5	150
Children's Medical Center[1-3]	Boston	R. E. Gross	1,620	48	..	11	50

Numerical and other references will be found on page 363.

26. SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Cambridge City Hospital[1-3]	Cambridge, Mass.	J. B. Vernaglia	1,631	27	1	3	125
Mount Auburn Hospital[1-3]	Cambridge, Mass.	S. J. G. Nowak	3,089	31	1	3	125
Malden Hospital[1-3]	Malden, Mass.	W. G. Garrey	2,170	24	3	6	125
Newton-Wellesley Hospital[1-3]	Newton, Mass.	R. I. Smith	3,734	25	1	3	170
Worcester City Hospital[3]	Worcester, Mass.	E. J. Croce	1,809	55	2	4	215
Leila Y. Post Montgomery Hospital[1]	Battle Creek, Mich.	R. L. Mustard	988	8	2	4	275
Alexander Blain Hospital[1-3]	Detroit	A. Blain, III	1,177	7	2	6	200
Detroit Memorial Hospital[1]	Detroit	T. I. Roth	2,278	18	2	4	250
Jennings Memorial Hospital[1-3]	*Detroit*	*J. B. Hartzell*	*736*	*6*	1	2	350
Mount Carmel Mercy Hospital[1-3]	Detroit	E. L. Stefani	3,829	39	4	14	225
Providence Hospital[1-3]	Detroit	D. H. O'Donnell	7,674	53	1	3	250
St. John's Hospital	Detroit	E. G. Krieg	2,882	3	1	3	275
St. Joseph Mercy Hospital[1]	Detroit	D. J. Leithauser	1,598	1	2	4	240
Sinai Hospital	Detroit	H. C. Saltzstein	1,586	28	2	5	275
McLaren General Hospital[1]	Flint, Mich.	E. P. Vary	4,307	16	1	3	325
Blodgett Memorial Hospital[1-3]	Grand Rapids, Mich.	J. W. Logie	1,920	5	1	3	225
St. Mary's Hospital[1-3]	Grand Rapids, Mich.	F. Gillett	1,680	12	1	3	200
Bronson Methodist Hospital[1]	Kalamazoo, Mich.	P. F. Cooper	2,649	45	1	4	200
Pontiac General Hospital[1-3]	Pontiac, Mich.	R. W. Bullard	5,032	34	1	3	300
Saginaw General Hospital[1-3]	Saginaw, Mich.	J. E. Manning	3,188	41	1	3	325
Mount Sinai Hospital[1-3]	Minneapolis	D. Gaviser	1,387	15	1	3	192
Northwestern Hospital[1-3]	Minneapolis	D. C. MacKinnon	2,386	8	1	3	200
St. Barnabas Hospital[1-3]	Minneapolis	C. O. Rice-L. B. Clay	1,080	4	2	2	...
Mayo Foundation[1-3]	Rochester, Minn.		12,582	135	55	163	150
St. Joseph's Hospital[1-3]	St. Paul	F. M. Owens, Jr.	5,070	20	1	4	162
Vicksburg Hospital	Vicksburg, Miss.	W. H. Parsons	1,500	12	3	3	50
Mercy Hospital-Street Memorial[1-3]	Vicksburg, Miss.	A. Street	2,727	8	1	3	225
St. Louis County Hospital[1-3]	Clayton, Mo.	B. L. Sinner	432	15	3	8	225
Kansas City General Hospital No. 2[1-3]	Kansas City, Mo.	R. E. Allen	1,089	41	2	6	...
Research Hospital[1-3]	Kansas City, Mo.	C. J. Hunt	1,166	11	2	6	175
St. Joseph Hospital[1-3]	Kansas City, Mo.	J. Underwood, Jr.	5,939	..	1	4	250
St. Luke's Hospital[1-3]	Kansas City, Mo.	L. P. Engel	1,498	16	2	5	175
De Paul Hospital[1-3]	St. Louis	J. W. Thompson	2,380	14	2	6	200
Missouri Baptist Hospital[1-3]	St. Louis	E. T. Vitt	2,179	37	2	7	175
St. John's Hospital[1-3]	St. Louis	G. T. Gafney	3,371	53	2	5	200
St. Luke's Hospital[1]	St. Louis	C. E. Lischer	2,883	46	2	4	200
Atlantic City Hospital[1-3]	Atlantic City, N. J.	J. H. Mason, III	2,164	12	1	3	200
Cooper Hospital[1-3]	Camden, N. J.	E. R. Ristine	2,739	53	1	4	200
West Jersey Hospital[1-3]	Camden, N. J.	H. W. Jack	2,045	23	1	4	200
Jersey City Medical Center[1-3]	Jersey City, N. J.	E. J. Halligan	5,389	78	8	25	92
Burlington County Hospital[1-3]	Mt. Holly, N. J.	T. J. Summey	1,540	21	1	2	100
Harrison S. Martland Medical Center[1-3]	Newark, N. J.	C. MacArthur	1,270	44	3	9	162
Hospital of St. Barnabas and for Women and Children[1-3]	Newark, N. J.	M. J. O'Grady	1,961	..	1	4	150
Orange Memorial Hospital[1-3]	Orange, N. J.	C. W. Scranton	2,894	34	1	3	150
St. Francis Hospital[1-3]	Trenton, N. J.	S. Sica	6,027	45	2	6	210
Binghamton City Hospital[1-3]	Binghamton, N. Y.	H. J. King	3,100	94	2	4	150
Beth-El Hospital[1-3]	Brooklyn	H. Neuhof	3,330	10	3	6	125
Cumberland Hospital[1-3]	Brooklyn	J. J. Gainey	2,396	18	5	8	...
Greenpoint Hospital[1-3]	Brooklyn	H. Feldman	2,290	28	2	6	105
Kings County Hospital County Division[1-3]	Brooklyn	J. F. Raycroft	4,549	81	5	12	104
Norwegian Lutheran Deaconesses' Home and Hospital[1-3]	Brooklyn	R. P. San Filippo	2,141	50	1	3	135
St. Catherine's Hospital[1-3]	Brooklyn	J. McCabe	3,084	20	1	4	125
St. John's Episcopal Hospital[1-3]	Brooklyn	M. N. Foote	2,478	15	1	3	175
Clifton Springs Sanitarium and Clinic[1-3]	Clifton Springs, N. Y.	R. M. Price	1,388	26	1	3	100
Jamaica Hospital[1-3]	Jamaica, N. Y.	E. J. Patterson	1,757	..	1	4	...
Mary Immaculate Hospital[1-3]	Jamaica, N. Y.	H. Draffen, Sr.	4,443	19	4	8	120
Charles S. Wilson Memorial Hospital[1-3]	Johnson City, N. Y.	C. Steenburg	3,890	24	3	9	200
Mount Vernon Hospital[3]	Mount Vernon, N. Y.	N. W. Cornell	3,141	15	1	3	125
New Rochelle Hospital[1-3]	New Rochelle, N. Y.	G. C. Adie	5,211	32	1	4	225
Beth David Hospital[1-3]	New York City	L. Breidenbach	2,643	17	2	3	...
Bronx Hospital[1-3]	New York City	R. Friedlander	2,735	13	4	10	50
Fordham Hospital[1-3]	New York City	H. H. Janes-A. B. Sullivan	2,561	44	4	6	105
French Hospital[1-3]	New York City	H. B. Keyes	1,960	11	1	4	50
Memorial Center for Cancer and Allied Diseases[1-3]	New York City	H. T. Randall	8,439	233	26	51	104
Morrisania City Hospital[1-3]	New York City	R. J. Azzari	892	16	2	6	105
New York City Hospital[1-3]	New York City	A. Zimany	2,149	15	3	5	104
St. Francis Hospital[1-3]	New York City	J. P. Alvich	2,084	23	1	3	175
Highland Hospital[1-3]	Rochester, N. Y.	H. R. Ziegler	3,502	30	3	6	100
Ellis Hospital[1-3]	Y.	S. F. MacMillan	6,155	57	2	4	150
Charlotte Memorial Hospital	C.	J. M. Van Hoy	1,911	15	1	3	250
Lincoln Hospital[1-3]	Durham, N. C.	H. M. Schiebel	1,136	9	2	4	175
Rex Hospital[1]	Raleigh, N. C.	A. T. Hamilton	2,407	19	1	3	200
City Memorial Hospital[1-3]	Winston-Salem, N. C.	J. F. Marshall	2,229	11	1	3	...
Aultman Hospital[1-3]	Canton, Ohio	H. J. Bowman	4,096	54	7	11	275
Christ Hospital[1]	Cincinnati	E. A. Kindel	2,622	31	2	5	200
Good Samaritan Hospital[1-3]	Cincinnati	C. S. Roof	2,423	14	2	8	175
Jewish Hospital[1-3]	Cincinnati	J. D. Heiman	5,838	42	4	11	145
St. Mary's Hospital[1-3]	Cincinnati	R. Mansfield	1,740	19	1	3	250
Evangelical Deaconess Hospital[1-3]	Cleveland	J. H. Lazzari	3,976	20	2	4	...
St. Alexis Hospital[1-3]	Cleveland	C. R. Lulenski	5,835	59	3	8	250
Mount Carmel Hospital[1]	Columbus, Ohio	W. H. Teachnor	5,273	53	1	3	...
White Cross Hospital[1-3]	Columbus, Ohio	E. M. Fusco	3,128	23	2	4	275
Miami Valley Hospital[1-3]	Dayton, Ohio	R. D. Snyder	9,301	93	2	6	160
Huron Road Hospital[1-3]	East Cleveland, Ohio	L. A. Steinhilber	5,022	40	2	6	210
Marymount Hospital[3]	Garfield Heights, Ohio	C. R. Jablonoski	3,800	..	4	7	...
St. Rita's Hospital[1-3]	Lima, Ohio	A. M. Barone	4,698	7	1	3	225
Maumee Valley Hospital[1-3]	*Toledo, Ohio*	W. W. Beck	*643*	*35*	2	6	...
Mercy Hospital[1-3]	Toledo, Ohio	E. L. Gaspari	4,474	50	1	3	250
St. Vincent's Hospital[1-3]	Toledo, Ohio	B. G. Shaffer	2,774	35	2	5	225
Toledo Hospital[1-3]	Toledo, Ohio	W. L. Bryant	4,645	32	1	3	200
Youngstown Hospital[1-3]	Youngstown, Ohio	A. E. Brant	9,048	65	2	8	175
St. Anthony Hospital	Oklahoma City	L. J. Starry	5,195	34	1	3	150
Hillcrest Medical Center[1]	Tulsa, Okla.	A. R. Wiley	2,410	11	2	5	...
St. John's Hospital[1-3]	Tulsa, Okla.	H. White	2,034	7	2	6	...
Emanuel Hospital[1-3]	Portland, Ore.	F. B. Packard	5,045	30	1	3	175
Allentown Hospital[1-3]	Allentown, Pa.	R. L. Schaeffer	2,252	30	1	3	225
Sacred Heart Hospital[1-3]	Allentown, Pa.	C. A. Holland	5,258	65	1	3	225

Numerical and other references will be found on page 363.

26. SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
St. Luke's Hospital[1-3]	Bethlehem, Pa.	D. P. Walker	4,002	41	5	5	275
Bryn Mawr Hospital[1-3]	Bryn Mawr, Pa.	F. R. Robbins	3,835	55	1	4	100
Hamot Hospital[1-3]	Erie, Pa.	B. Goldman	4,668	39	1	3	200
St. Vincent's Hospital[1-3]	Erie, Pa.	J. W. Schilling	1,599	17	1	3	100
Harrisburg Polyclinic Hospital[1]	Harrisburg, Pa.	W. K. McBride	4,648	31	2	5	250
St. Joseph's Hospital[1-3]	Lancaster, Pa.	J. L. Atlee, Jr.	4,361	32	1	3	200
Albert Einstein Medical Center—Northern Division[1-3]	Philadelphia	A. Behrend	4,577	40	2	6	150
Albert Einstein Medical Center—Southern Division[1-3]	Philadelphia	B. Lipshutz-L. Kaplan	3,645	37	3	3	150
Episcopal Hospital[1-3]	Philadelphia	J. W. Klopp	1,957	33	1	3	150
Methodist Episcopal Hospital[1-3]	Philadelphia	G. Willauer	2,525	25	1	4	200
Philadelphia General Hospital[1-3]	Philadelphia	L. C. Manges	678	10	2	8	113
Presbyterian Hospital[1-3]	Philadelphia	O. C. King	2,492	35	2	6	100
Woman's Hospital[1-3]	Philadelphia	C. M. Smyth, Jr.	1,285	..	1	2	175
Montefiore Hospital[1-3]	Pittsburgh	Y. D. Koskoff	5,729	19	1	3	125
Pittsburgh Hospital[1-3]	Pittsburgh	J. W. Stinson	2,339	20	1	3	...
St. Francis General Hospital and Rehabilitation Institute[1-3]	Pittsburgh	H. E. Feather	3,108	26	1	4	200
Reading Hospital[1-3]	Reading, Pa.	C. B. Rentschler	1,790	21	1	3	225
St. Joseph's Hospital[1-3]	Reading, Pa.	R. R. Impink	590	19	1	4	250
Williamsport Hospital[1-3]	Williamsport, Pa.	F. E. Sanford	2,749	20	2	6	200
Columbia Hospital[1-3]	Columbia, S. C.	W. M. Corbett	2,585	20	1	3	175
Baroness Erlanger Hospital[1-3]	Chattanooga, Tenn.	V. Fletcher	3,042	8	8	14	125
Methodist Hospital	Memphis, Tenn.	J. M. Aste	6,396	26	3	3	100
St. Joseph Hospital[1-3]	Memphis, Tenn.	A. J. Grobmyer	1,485	12	1	4	100
Baptist Hospital[1-3]	Nashville, Tenn.	J. Kirtley	4,537	21	3	8	175
Methodist Hospital[1-3]	Dallas, Texas	B. E Park	2,636	7	3	7	125
Hermann Hospital[1]	Houston, Texas	G. Waldron	5,314	46	1	6	100
St. Joseph's Hospital[1]	Houston, Texas	J. P. Barnes	2,197	15	2	4	225
Robert B. Green Memorial Hospital[1-3]	San Antonio, Texas	T. A. Pressly	1,395	40	2	6	150
Dr. W. H. Groves Latter-Day Saints Hospital[1-3]	Salt Lake City	V. L. Rees	2,701	22	3	8	200
Mary Fletcher Hospital[1-3]	Burlington, Vt.	A. G. MacKay	1,223	11	1	4	100
Alexandria Hospital[1-3]	Alexandria, Va.	C. L. Fifer	1,345	5	1	3	225
Johnston-Willis Hospital[1-3]	Richmond, Va.	F. S. Johns	3,443	9	1	3	250
Jefferson Hospital[1-3]	Roanoke, Va.	A. P. Jones	1,046	16	2	4	...
Swedish Hospital[1-3]	Seattle	J. A. Duncan	7,659	144	1	3	100
Beckley Hospital[3]	Beckley, W. Va.	....	2,383	15	2	4	250
Charleston General	W. Va.	H. A. Bailey	2,492	15	2	8	175
Memorial Hospital	W. Va.	B. Bradford	3,745	27	2	5	225
St. Mary's Hospita	W. Va.	W. C. Kappes	2,280	13	1	4	150
Broaddus Hospital[1-3]	Philippi, W. Va.	H. C. Myers	1,297	76	1	4	200
Ohio Valley General Hospital[1-3]	Wheeling, W. Va.	J. O. Rankin	3,601	25	1	3	300
Madison General Hospital[1-3]	Madison, Wis.	J. S. Supernaw	3,212	22	1	6	150
Columbia Hospital[1-3]	Milwaukee	F. Raine	916	5	1	3	195
St. Joseph's Hospital[1-3]	Milwaukee	C. Conroy	5,911	85	2	6	200
Gorgas Hospital[1-3]	Ancon, C. Z.	W. W. Nichol	1,808	37	2	6	345
Queen's Hospital[1-3]	Honolulu, T. H.	J. E. Strode	3,111	22	2	6	125
Bayamon District Hospital[1-3]	Bayamon, P. R.	J. M. Bertran	1,579	54	1	3	150

The following hospitals approved by the Council, the American Board of Surgery and the American College of Surgeons through the Conference Committee on Graduate Training in Surgery, offer training in surgery of less than three years' duration, which is integrated with or contributory to a fully approved program.

(See also additional lists of approved services, pp. 343-349 and 350-351)

Hospitals, 47; Assistant Residencies and Residencies, 150

FEDERAL

VETERANS ADMINISTRATION

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Veterans Admin. Research Hospital[1]	Chicago	F. Preston	289	19	3	10	...
Veterans Admin. Hospital[1-3]	Durham, N. C.	J. P Collins	1,265	9	3	5	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Glendale Sanitarium and Hospital[1]	Glendale, Calif.	J. Janzen	3,303	14	1	3	165
Peralta Hospital[1]	Oakland, Calif.	J. L. Lohse	6,203	14	..	..	210
Samuel Merritt Hospital[1]	Oakland, Calif.	P. C. Samson	3,184	24	..	2	195
French Hospital[1-3]	San Francisco	W. L. Rogers	2,403	14	2	3	125
Santa Barbara General Hospital[1-3]	Santa Barbara, Calif.	A. I. Bissell	278	8	..	..	...
Children's Hospital[1-3]	Denver	G. B. Packard	1,872	33	..	2	160
Children's Memorial Hospital[1-3]	Chicago	W. J. Potts	2,148	18	..	2	75
Henrotin Hospital[1]	Chicago	C. B. Puestow	1,388	2	1	1	200
St. Francis Hospital[1-3]	Peoria, Ill.	C. D. Branch	4,188	35	1	2	...
Broadlawns-Polk County Hospital[1]	Des Moines, Iowa	R. M. Stickler	875	25	..	1	175
Norton Memorial Infirmary[1-3]	Louisville, Ky.	L. H. Segerberg	1,862	18	3	5	250
Lafayette Charity Hospital[1]	Lafayette, La.	J. D. Rives	2,500	19	..	2	500
Lawrence F. Quigley Memorial Hospital[1-3]	Chelsea, Mass.	H. H. Howard	1,239	16	..	4	255
Truesdale Hospital[1-3]	Fall River, Mass.	W. G. Atwood	2,291	..	4	4	150
Lynn Hospital[1-3]	Lynn, Mass.	C. F. Twomey	3,511	27	1	1	150
Salem Hospital[1-3]	Salem, Mass.	W. G. Phippen	2,838	29	1	1	125
Pondville Hospital[1]	Walpole, Mass.	E. M. Daland	1,414	118	..	4	490
Westfield State Sanatorium[1-3]	Westfield, Mass.	F. S. Hopkins	.....	..	3	3	490
Ellis Fischel State Cancer Hospital[1-3]	Columbia, Mo.	N. D. Rodes	950	..	..	6	...
St. Louis Children's Hospital	St. Louis	....	.....	..	..	..	...
John E. Jennings Hospital[1-3]	Brooklyn	....	.....	..	..	..	...
Emergency Hospital	Buffalo	....	.....	..	..	..	...
Francis Delafield Hospital[1-3]	New York City	G. H. Humphreys, II	906	117	4	13	106
Goldwater Memorial Hospital[1-3]	New York City	B. Shafiroff	505	16	2	8	104
Gouverneur Hospital[1-3]	New York City	F. J. McGowan	694	25	3	9	104
Knickerbocker Hospital[1-3]	New York City	R. L. Patterson	2,615	20	..	9	110
United Hospital[1-3]	Port Chester, N. Y.	G. O. Tremble	3,620	30	1	1	200
Children's Hospital[1-3]	Akron, Ohio	R. M. Bartlett	1,343	16	2	6	250
Children's Hospital[1]	Cincinnati	W. A. Altemeier	798	20	..	..	...
Children's Hospital[1]	Columbus, Ohio	H. W. Clatworthy	1,263	26	..	1	175
Good Samaritan Hospital[1-3]	Dayton, Ohio	I. Helfert	5,564	32	2	2	250
Holzer Hospital[1]	Gallipolis, Ohio	M. J. Magnussen	2,800	15	1	1	200
Easton Hospital[1-3]	Easton, Pa.	T. C. Zulick, Jr.	1,805	30	2	2	250
Children's Hospital[1-3]	Philadelphia	C. E. Koop	1,947	20	2	4	67
Children's Hospital[1-3]	Pittsburgh	G. V. Foster	1,003	16	..	2	125
Sacred Heart Hospital[1]	Yankton, S. Dak.	C. B. McVay	2,214	7	1	3	...

Numerical and other references will be found on page 363.

26. SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Gaston Hospital	Dallas, Texas	J. V. Goode	.....	..	..	3	...
University of Texas M. D. Anderson Hospital and Tumor Institute [1-3]	Houston, Texas	E. O. White	818	42	..	14	150
Holy Cross Hospital [1-3]	Salt Lake City	P. M. Howard	3,875	44	2	3	175
St. Mark's Hospital [1-3]	Salt Lake City	P. A. Pemberton	4,831	12	3	3	175
Lynchburg General Hospital [1-3]	Lynchburg, Va.	J. E. Haynsworth	2,416	13	1	2	150
Lewis Gale Hospital [1-3]	Roanoke, Va.	W. L. Sibley	2,887	27	2	3	250
Children's Orthopedic Hospital [1-3]	Seattle	H. E. Coe	590	11	2	2	195
Chesapeake and Ohio Hospital [1-3]	Huntington, W. Va.	J. E. Parsons	2,376	16	..	..	150
Milwaukee Children's Hospital [1]	Milwaukee	P. F. Hausmann	1,861	26	..	..	150

The following services are approved by the Council as offering satisfactory training of one or two years' duration in preparation for residency training in the surgical specialties only. Applicants intending to qualify for examination by the American Board of Surgery should refer to the lists of approved services on pp. 343-350 (Surgical Residencies, J. A. M. A., 156:432, Sept. 25, 1954)

Hospitals, 124; Assistant Residencies and Residencies, 321

FEDERAL

UNITED STATES ARMY

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
U. S. Army Hospital [1-3]	*Fort Campbell, Ky.*	*H. F. Bertram*	5,061	22	2	2	...
U. S. Army Hospital [1]	Fort Knox, Ky.	L. R. Steele	1,824	..	2	2	...
Valley Forge Army Hospital [1]	Phoenixville, Pa.	W. R. Matuska	3,003	70	4	4	...
U. S. Army Hospital [1]	Fort Belvoir, Va.	R. M. Hardaway	7,871	8	2	2	...
Madigan Army Hospital	Tacoma, Wash.	J. E. Graham	2,048	3	..	..	...

UNITED STATES AIR FORCE

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
U. S. Air Force Hospital [1-3]	Belleville, Ill.	L. S. Staudinger, Jr.	508	15	1	1	...
U. S. Air Force Hospital [1-3]	Rantoul, Ill.	O. K. Park	689	1	1	1	...
U. S. Air Force Hospital [8]	San Antonio, Texas	D. Gold	1,844	7	2	2	...
U. S. Air Force Hospital [1-3]	Wichita Falls, Texas	M. N. Jensen	939	2	2	2	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Good Samaritan Hospital [8]	Phoenix, Ariz.	D. W. Mellck	7,075	30	2	2	250
St. Joseph's Hospital [1-3]	Phoenix, Ariz.	W. H. Cleveland	2,431	13	1	1	225
St. Mary's Hospital and Sanitarium [1-3]	Tucson, Ariz.	H. D. Cogswell	5,120	110	4	4	200
Tucson Medical Center [1-3]	Tucson, Ariz.	W. D. Carrell	970	9	2	2	200
Arkansas Baptist Hospital [1]	Little Rock, Ark.	T. J. Raney	2,315	8	1	1	225
General Hospital of Riverside County [1]	Arlington, Calif.	O. G. Fraser	538	14	1	1	376
Seaside Memorial Hospital [1-3]	Long Beach, Calif.	W. G. Rhorer	2,132	7	4	4	150
Santa Fe Coast Lines Hospital	Los Angeles	L. Chaffin	1,021	15	1	1	250
Collis P. and Howard Huntington Memorial Hospital [1-3]	Pasadena, Calif.	L. G. Craig	3,456	33	1	3	240
San Bernardino County Charity Hospital	San Bernardino, Calif.	R. Seavers	786	40	4	5	190
Children's Hospital [1-3]	San Francisco	F. C. Bost	567	7	1	2	125
Mary's Help Hospital [1-3]	San Francisco	E. Carlson	1,236	6	1	2	150
St. Luke's Hospital [3]	San Francisco	G. D. Delprat	4,716	17	3	5	200
Community Hospital of San Mateo County [1-3]	San Mateo, Calif.	K. H. Prindle	402	6	2	4	400
St. John's Hospital	Santa Monica, Calif.	R. M. Neale	6,005	..	1	1	175
Colorado State Hospital [1-3]	Pueblo, Colo.	T. E Wade	708	40	1	4	415
Corwin Hospital [1]	Pueblo, Colo.	S. B. Potter	2,901	3	2	2	125
Greenwich Hospital [1-3]	Greenwich, Conn.	H. P. Serrell	3,108	31	1	1	150
Hartford Municipal Hospital and Health Center [1-3]	Hartford, Conn.	C. Kelly	691	17	1	2	250
Meriden Hospital [1-3]	Meriden, Conn.	A. J. Ryan	1,991	18	2	2	200
Lawrence and Memorial Associated Hospitals [1-3]	New London, Conn.	F. B. Hartman	4,194	20	3	3	250
Norwalk Hospital [1-3]	Norwalk, Conn.	E. C. Beck	1,495	10	2	2	160
St. Mary's Hospital [1-3]	Waterbury, Conn.	C. H. Audet, Sr.	2,511	16	2	4	225
Sibley Memorial Hospital [1-3]	Washington, D. C.	P. S. Putzki	6,319	13	3	5	200
Riverside Hospital [1-3]	Jacksonville, Fla.	T. Moseley	930	9	1	1	150
St. Luke's Hospital [1]	Jacksonville, Fla.	K. Morris	4,601	9	2	2	225
St. Francis Hospital [1-3]	Miami Beach, Fla.	J. H. Tanous	1,767	23	2	2	200
Orange Memorial Hospital [1-3]	Orlando, Fla.	F. D. Gray	1,586	15	4	4	150
Mound Park Hospital [1]	St. Petersburg, Fla.	E. V. Pollard	1,120	29	1	1	283
Tampa Municipal Hospital [1-3]	Tampa, Fla.	W. C. Meyers, Jr.	5,852	68	1	3	125
MacNeal Memorial Hospital [1]	Berwyn, Ill.	J. L. Grout	2,039	11	4	4	225
Englewood Hospital [8]	Chicago	J. Van Epps	2,691	10	1	1	200
Hospital of St. Anthony de Padua [1-3]	Chicago	R. Johnson	3,933	7	2	2	250
Norwegian American Hospital [1-3]	Chicago	A. Triolo	1,283	5	3	3	225
Ravenswood Hospital [1-3]	Chicago	M. Field	1,525	10	1	2	75
St. Anne's Hospital [1-3]	Chicago	P. F. Fox	5,141	6	2	2	200
Women and Children's Hospital [2-3]	Chicago	K. True	634	7	1	1	100
Woodlawn Hospital [1-3]	Chicago	H. P. Jenkins	958	8	1	2	150
Little Company of Mary Hospital [1-3]	Evergreen Park, Ill.	D. G. Sullivan	6,718	7	2	8	150
Methodist Hospital of Central Illinois [1-3]	Peoria, Ill.	J. Mathis	5,398	38	3	4	200
St. Anthony Hospital [1-3]	Rockford, Ill.	R. G. Smith	1,776	11	1	3	200
Ball Memorial Hospital [1]	Muncie, Ind.	J. H. Clevenger	4,380	33	2	2	200
Mercy Hospital [1]	Iowa City	J. W. Dulin	2,259	15	2	2	150
St. Francis Hospital [1-3]	Wichita, Kan.	W. C. Bartlett	3,231	36	3	3	275
Good Samaritan Hospital [1]	Lexington, Ky.	F. Massie	6,488	..	1	1	225
Hotel Dieu-Sisters Hospital [1]	New Orleans	M. Salatich	4,198	26	2	4	225
Central Maine General Hospital [1]	Lewiston, Maine	W. V. Cox	2,198	23	1	1	150
Bon Secours Hospital [8]	Baltimore	G. A. Stewart	955	11	..	1	260
Burbank Hospital [1]	Fitchburg, Mass.	F. P. Ross	2,072	56	..	2	200
Florence Crittenton Hospital [1-3]	Detroit	T. T. Callaghan	2,141	23	2	2	...
Woman's Hospital [1-3]	Detroit	J. R. Brown	3,475	18	1	2	250
Edward W. Sparrow Hospital [1-3]	Lansing, Mich.	R. W. Wadley	6,266	49	1	3	350
St. Joseph Mercy Hospital [1-3]	Pontiac, Mich.	C. G. Darling	1,674	2	2	3	325
Swedish Hospital [1-3]	Minneapolis	H. Mattson	8,503	42	3	8	200
Menorah Medical Center [1-3]	Kansas City, Mo.	P. H. Halperin	4,484	25	3	6	200
St. Mary's Hospital [1-3]	Kansas City, Mo.	F. L. Feierabend	5,057	44	2	2	200
Missouri Methodist Hospital [1-3]	St. Joseph, Mo.	B. H. Moen	4,245	38	2	2	225
St. Anthony's Hospital [1-3]	St. Louis	J. E. Von Kaenel	3,410	31	1	1	150
St. Elizabeth Hospital [1-3]	Lincoln, Neb.	R. F. Mueller	3,690	16	1	2	250
Hackensack Hospital [1-3]	Hackensack, N. J.	A. I. Mader, Jr.	5,273	39	1	8	125
Monmouth Memorial Hospital [1-3]	Long Branch, N. J.	H. Kazmann	2,363	25	1	3	200
Mountainside Hospital [1-3]	Montclair, N. J.	R. Stewart	4,643	154	2	2	175
Morristown Memorial Hospital	Morristown, N. J.	G. H. Laudig	1,842	26	1	1	185

Numerical and other references will be found on page 363.

26. SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Fitkin Memorial Hospital[1-8]	Neptune, N. J.	O. K. Parry	1,688	6	1	1	200
[illegible]	Newark, N. J.	R. H. Hill	5,328	47	4	4	125
[illegible]	Buffalo	J. Stubenbord	4,785	27	3	9	250
[illegible]	[illegible]	D. M. Vickers	885	4	1	1	200
[illegible]	[illegible]	V. Carabba	1,957	18	1	4	200
[illegible][1-8]	New York City	P. Klingenstein	863	9	4	4	80
[illegible]	New York City	B. Sherwin	1,479	23	1	1	150
[illegible]	New York City	M. Cohen-B. Sherwin	1,538	17	1	1	100
Misericordia Hospital[1-8]	New York City	A. S. McQuillan	1,570	9	1	2	100
Mother Cabrini Memorial Hospital[1-3]	New York City	J. P. Alvich	1,917	4	..	1	125
New York Infirmary[2-8]	New York City	L. Loseke	483	7	1	1	150
Sydenham Hospital[1-8]	New York City	S. Standard	924	11	2	4	105
St. Agnes Hospital[1]	Raleigh, N. C.	G. W. Paschal	1,053	11	1	1	250
Kate Bitting Reynolds [illegible]	[illegible] C.	J. M. Walker, Jr.	1,912	18	2	5	200
Bismarck Hospital[8]	[illegible]k.	R. H. Waldschmidt	756	1	2	2	300
St. Luke's Hospital	Fargo, N. Dak.	V. G. Borland	986	2	1	1	300
Deaconess Hospital[1-8]	Cincinnati	R. W. Good-J. Payne	3,186	15	3	3	175
Fairview Park Hospital[1-8]	Cleveland	W. E. Smith	1,381	8	3	3	125
Doctors Hospital[1-8]	Cleveland Heights, Ohio	R. R. Renners	1,811	14	2	4	200
St. Elizabeth Hospital[1]	Dayton, Ohio	T. P. Rab	4,028	33	1	1	225
Mercy Hospital[1-8]	Hamilton, Ohio	J. A. Mackie	2,232	29	3	3	250
Mansfield General Hospital[1-3]	Mansfield, Ohio	M. S. Reed	998	4	..	2	225
Wesley Hospital[1]	Oklahoma City	J. H. Robinson	1,405	10	3	3	225
Good Samaritan Hospital[1-8]	Portland, Ore.	H. M. Nickols	.....	..	2	6	250
Providence Hospital[1-8]	Portland, Ore.	L. P. Gambee	6,743	90	1	3	175
Bradford Hospital[1-8]	Bradford, Pa.	S. A. McCutcheon	1,367	7	3	3	250
Hazelton State Hospital[1-8]	Hazelton, Pa.	J. P. H. Kettrick	2,497	6	2	4	445
Doctors Hospital[1-8]	Philadelphia	J. W. Bransfield	753	1	1	1	200
Frankford Hospital[1-8]	Philadelphia	O. P. Large	1,432	11	1	3	250
St. Joseph's Hospital[1-3]	Philadelphia	J. A. Lehman	3,181	4	4	12	...
St. Mary's Hospital[8]	Philadelphia	P. A. McCarthy	2,917	6	1	1	250
Mercy Hospital[1-8]	Wilkes-Barre, Pa.	F. R. Hanlon	1,371	5	1	1	300
Columbia Hospital	Wilkinsburg, Pa.	W. B. Hetzel	2,179	15	1	2	300
Newell Hospital[8]	Chattanooga, Tenn.	E. T. Newell, Jr.	2,020	13	3	3	400
St. Mary's Memorial Hospital[1-3]	Knoxville, Tenn.	C. L. Chumley	1,592	9	4	8	300
Brackenridge Hospital[1-8]	Austin, Texas	R. O. Swearingen	1,672	21	1	4	300
Harris Hospital[1-3]	Fort Worth, Texas	C. J. Terrell	4,902	33	2	4	300
Southern Pacific Hospital[8]	Houston, Texas	J. R. Gandy	487	6	2	4	250
Baptist Memorial Hospital[1-8]	San Antonio, Texas	R. F. Gossett	5,243	33	1	1	150
Thomas D. Dee Memorial Hospital[1-8]	Ogden, Utah	O. E. Grua	2,178	9	2	2	250
Bishop De Goesbriand Hospital[1-8]	Burlington, Vt.	A. A. Gladstone	743	7	1	3	100
De Paul Hospital[1-8]	Norfolk, Va.	W. B. Hoover	1,599	11	2	3	200
St. Elizabeth's Hospital[1-8]	Richmond, Va.	G. W. Horsley	923	3	1	2	200
Doctors Hospital[1-3]	Seattle	D. K. Crystal	3,891	29	1	2	125
Providence Hospital[2]	Seattle	R. Pinkham	6,043	67	3	3	200
St. Luke's Hospital[1-3]	Spokane, Wash.	L. O. Pence	2,352	26	1	1	150
Laird Memorial Hospital[1-8]	Montgomery, W. Va.	W. R. Laird	1,955	8	1	2	...
Mercy Hospital	Janesville, Wis.	.....	.....	..	..	..	...
La Crosse Lutheran Hospital[1-8]	La Crosse, Wis.	S. B. Gundersen	870	3	1	1	300
Methodist Hospital[1-3]	Madison, Wis.	J. R. Steeper	5,088	65	1	1	200
Evangelical Deaconess Hospital[1-8]	Milwaukee	K. Schlaepfer	4,193	39	2	2	250
St. Luke's Hospital[1-3]	Milwaukee	J. J. Adamkiewicz	2,554	27	3	3	275

27. THORACIC SURGERY

The following services have been approved by the Council on Medical Education and Hospitals without specifying the number of years for which they are accredited.

Hospitals, 71; Assistant Residencies and Residencies, 170

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (*Month*)
UNITED STATES ARMY							
Fitzsimons Army Hospital[1]	Denver	J. M. Salyer	460	16	..	..	...
Army Medical Center[1-3]	Washington, D. C.	P. W. Shafer	144	1	1	2	...
UNITED STATES NAVY							
U. S. Naval Hospital[1]	St. Albans, N. Y.	R. N. Grant	196	1	..	..	...
VETERANS ADMINISTRATION							
Veterans Admin. Hospital[1-8]	Los Angeles	F. X. Byron	299	20	2	2	...
Veterans Admin. Research Hospital[1]	Chicago	(See Northwestern University Medical Center)					
Veterans Admin. Hospital[1]	Hines, Ill.	H. T. Langston	235	7	4	6	...
Veterans Admin. Hospital[1-8]	Rutland Heights, Mass.	J. B. Petter	535	3	1	1	...
Veterans Admin. Hospital[1-8]	Minneapolis	T. J. Kinsella	98	7	1	1	...
Veterans Admin. Hosptial[2-8]	St. Louis	T. H. Burford	134	7	1	2	...
Veterans Admin. Hospital[1-3]	Brooklyn	R. Klopstock	135	6	1	2	...
Veterans Admin. Hospital[1-8]	Buffalo	W. M. Chardack	250	9	1	2	...
Veterans Admin. Hospital[1-3]	Castle Point, N. Y.	R. C. Barbieri	197	..	..	2	...
Veterans Admin. Hospital[1-8]	New York City (Bronx)	A. Himmelstein	148	4	2	3	...
Veterans Admin. Hospital	Sunmount, N. Y.	J. W. Bell	259	..	..	1	...
Veterans Admin. Hospital[1-3]	Oteen, N. C.	J. D. Murphy	1,085	34	..	5	...
Veterans Admin. Hospital[1-8]	Cleveland	H. J. Mendelsohn	141	10	1	2	...
Veterans Admin. Hospital[1-8]	Memphis, Tenn.	F. A. Hughes	408	27	1	2	...
Veterans Admin. Hospital[1-3]	McKinney, Texas	R. E. Carr	195	10	1	2	...
Veterans Admin. Hospital[1-3]	Richmond, Va.	L. W. Bosher	239	18	1	2	...
Veterans Admin. Hospital[1-3]	(Wood) Milwaukee	F. Raine	140	6	1	1	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (*Month*)
City of Hope Medical Center	Duarte, Calif.	A. Goldman	418	26	1	1	400
Highland-Alameda County Hospital[1-8]	Oakland, Calif.	P. Samson	211	5	2	3	195
Harbor General Hospital[1-8]	Torrance, Calif.	B. Ramsay	97	2	1	2	200
National Jewish Hospital[3]	Denver	J. B. Grow	378	..	1	1	200

Numerical and other references will be found on page 363.

27. THORACIC SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	G. E. Lindskog	370	5	..	1	50
Cedarcrest Hospital [1-3]	Newington, Conn.	R. L. Kemler	143	9	1	1	335
Uncas-On-Thames [1-3]	Norwich, Conn.	W. O. Kelley	.....	..	1	1	335
George Washington University Hospital [1-3]	Washington, D. C.	B. Blades	344	7	2	2	267
University Hospital [1-3]	Augusta, Ga.	R. Major	234	5	..	1	160
Chicago State Tuberculosis Sanitarium	Chicago	H. T. Langston	476	9	2	2	500
Children's Memorial Hospital [1-3]	Chicago	W. J. Potts	178	11	..	1	75
City of Chicago Municipal Tuberculosis Sanitarium [1-3]	Chicago	W. M. Lees	1,336	4	..	7	175
Northwestern University Medical Center							
Veterans Admin. Hospital [1]	Chicago	E. Avery	28	3	1	4	...
University Hospital [1-3]	Baltimore	O. C. Brantigan	58	4	1	2	50
Boston City Hospital and Sanatorium Division [1-3]	Boston	J. W. Strieder	144	3	1	3	292
University Hospital [1-3]	Ann Arbor, Mich.	C. Haight	670	31	2	6	175
Herman Kiefer Hospital [1-3]	Detroit	E. J. O'Brien	1,596	4	4	7	505
Ingham Chest Hospital	Lansing, Mich.	C. J. Stringer	484	5	1	2	450
Barnes Hospital [1-3]	St. Louis	T. Burford	767	32	..	5	50
B. S. Pollak Hospital for Chest Diseases [1-3]	Jersey City, N. J.	F. Bortone	154	2	..	2	167
Kings County Hospital							
County Service	Brooklyn	E. H. Griffin	213	10	1	2	156
University Services [1-3]	Brooklyn	E. Mannix	182	9	2	3	104
Edward J. Meyer Memorial Hospital [1]	Buffalo	J. D. Stewart	147	10	..	2	179
Hermann N. Biggs Memorial Hospital [1-3]	Ithaca, N. Y.	R. Douglass	194	..	2	2	400
Triboro Hospital	Jamaica, N. Y.	L. Miscall	300	7	8	8	105
Mount Morris Tuberculosis Hospital [1-3]	Mt. Morris, N. Y.	J. M. Judd	98	1	2	2	400
Bellevue Medical Center							
Division I-Columbia University [1-3]	New York City	R. H. Wylie	226	4	2	4	105
Metropolitan Hospital [1-3]	New York City	S. A. Thompson	100	8	1	2	104
Montefiore Hospital [1-3]	New York City	A. H. Aufses	147	7	..	1	75
St. Joseph's Hospital for Chest Diseases [1-3]	New York City	W. W. Fischer	356	5	1	2	...
Homer Folks Tuberculosis Hospital [1-3]	Oneonta, N. Y.	A. M. Skinner	145	2	1	2	400
Ray Brook State Tuberculosis Hospital [1-3]	Ray Brook, N.Y.	D. Pecora	205	..	2	2	470
Sea View Hospital [1-3]	Staten Island, N. Y.	L. R. Davidson	300	1	4	7	157
Charlotte Memorial Hospital [1]	Charlotte, N. C.	J. M. Van Hoy	163	2	1	2	250
Duke University Hospital [1-3]	Durham, N. C.	W. C. Sealy	440	9	..	2	67
North Carolina Baptist Hospitals [1-3]	Winston-Salem, N. C.	H. H. Bradshaw	170	..	..	..	...
City Hospital [1-3]	Cleveland	C. W. Munz	80	9	..	2	213
Sunny Acres Tuberculosis Sanitarium	Cleveland	S. O. Freedlander	160	2	..	..	458
Benjamin Franklin Hospital [1-3]	Columbus, Ohio	M. G. Buckles	446	1	1	2	475
Ohio State University Hospitals							
Ohio Tuberculosis Hospital [1-3]	Columbus, Ohio	N. C. Andrews	106	1	..	2	380
University Hospital [1-3]	Columbus, Ohio	K. P. Klassen	695	29	..	2	150
University of Oregon Medical School Hospitals and Clinics [1-3]	Portland, Ore.	W. S. Conklin	291	10	1	2	85
Episcopal Hospital [1-3]	Philadelphia	R. P. Glover	84	6	2	2	150
Hahnemann Medical College and Hospital [8]	Philadelphia	C. Bailey	1,035	90	3	5	...
Philadelphia General Hospital [1-3]	Philadelphia	C. P. Bailey-J. Johnson	49	..	1	1	113
Baptist Memorial Hospital [1-3]	Memphis, Tenn.	D. M. Carr	420	7	1	2	100
West Tennessee Tuberculosis Hospital [1-3]	Memphis, Tenn.	F. H. Cole	.....	2	2	3	200
Baylor University Hospital [1-3]	Dallas, Texas	R. R. Shaw	562	14	2	2	125
University of Texas Medical Branch Hospitals	Galveston, Texas	A. W. Harrison	215	4	1	2	...
Dr. W. H. Groves Latter-Day Saints Hospital [1-3]	Salt Lake City	W. R. Rumel	264	9	..	2	275
University of Virginia Hospital [1-3]	Charlottesville, Va.	E. C. Drash	731	11	1	4	50
Firland Sanatorium [1-3]	Seattle	F. J. Jarvis	289	7	1	1	200
Leahi Hospital [1-3]	Honolulu, T. H.	P. W. Gebauer	.....	1	1	1	400

28. UROLOGY

The following services have been approved by the Council and the American Board of Urology, through the Residency Review Committee for Urology, as offering acceptable training in the specialty.

Hospitals, 215; Assistant Residencies and Residencies, 626

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital [1]	San Francisco	E. Lowry	352	..	..	..	3	...
Fitzsimons Army Hospital [1]	Denver	C. W. Hoffman, Jr.	186	3	..	..	1	...
Army Medical Center [1-3]	Washington, D. C.	J. W. Schwartz	504	3	2	6	3	...
Brooke Army Hospital [1-3]	San Antonio, Texas	C. C. Dodson	867	12	2	6	3	...
Tripler Army Hospital [1]	Honolulu, T. H.	L. K. Mantell	832	2	1	4	3	...
UNITED STATES NAVY								
U. S. Naval Hospital [1]	Oakland, Calif.	M S. Curtis	784	3	..	..	3	...
U. S. Naval Hospital [1]	San Diego, Calif.	J. R. Dillon, Jr.	1,204	15	..	..	3	...
U. S. Naval Hospital [1-3]	Bethesda, Md.	J. S. Hanten	865	4	1	3	3	...
U. S. Naval Hospital [1]	St. Albans, N. Y.	J. F. Richardson	473	1	..	..	3	...
U. S. Naval Hospital [1]	Philadelphia	J. T. Cangelosi	747	6	..	..	3	...
UNITED STATES PUBLIC HEALTH SERVICE								
U. S. Public Health Service Hospital [1-3]	Staten Island, N. Y.	C. Ferguson	652	11	1	3	3	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE								
Freedmen's Hospital [1-3]	Washington, D. C.	R. F. Jones	241	4	..	1	3	...
VETERANS ADMINISTRATION								
Veterans Admin. Hospital [1-3]	Birmingham, Ala.	J. F. Cason	326	5	1	2	2	...
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	A. J. Bischoff	383	13	1	3	3	...
Veterans Admin. Hospital	Los Angeles	W. Goodwin	1,374	33	2	7	3	...
Veterans Admin. Hospital [1]	San Francisco	H. M. Weyrauch-D. R. Smith	269	9	1	3	8	...

Numerical and other references will be found on page 363.

28. UROLOGY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Veterans Admin. Hospital[1-3]	West Haven, Conn.	G. R. Read	96	4	1	2	2	...
Veterans Admin. Hospital[1-3]	Washington, D. C.	J. G. Lee	275	10	..	2	3	...
Veterans Admin. Hospital[1]	Atlanta, Ga.	W. N. Morrison	329	6	1	2	2	...
Veterans Admin. Hospital[1]	Hines, Ill.	F. Lloyd	1,162	26	4	12	3	...
Veterans Admin. Hospital[1]	Des Moines, Iowa	C. Losh, Jr.	774	6	2	2	2	...
Veterans Admin. Hospital[1-3]	Wadsworth, Kan.	I. S. Brown	164	5	1	3	3	...
Veterans Admin. Hospital[1-3]	New Orleans	E. Burns	247	5	1	3	3	...
Veterans Admin. Hospital[1-3]	Fort Howard, Md.	H. J. Meisel	235	6	1	1	3	...
Veterans Admin. Hospital[1-3]	Boston (Jamaica Plain)	R. Chute	873	15	1	2	2	...
Veterans Admin. Hospital[1]	Boston (West Roxbury)	H. S. Talbot	268	4	1	2	3	...
Veterans Admin. Hospital[1-3]	Dearborn, Mich.	J. M. Caputo	828	17	..	1	1	...
Veterans Admin. Hospital[1-3]	Minneapolis	C. D. Creevy	538	14	1	4	3	...
Veterans Admin. Hospital[1]	Kansas City, Mo.	(See University of Kansas Medical Center, Kansas City, Kan.)						
Veterans Admin. Hospital[1-3]	St. Louis	J. P. Altheide	208	2	1	3	3	...
Veterans Admin. Hospital[1-3]	Lincoln, Neb.	A. D. Munger	229	..	1	2	3	...
Veterans Admin. Hospital[1-3]	Brooklyn	F. L. Senger	584	10	1	3	3	...
Veterans Admin. Hospital[1-3]	Buffalo	W. M. Chardack	413	2	..	2	3	...
Veterans Admin. Hospital[1-3]	New York City (Bronx)	A. L. Dean	1,128	20	2	4	3	...
Veterans Admin. Hospital	New York City (Manhattan)		...	..	..	..	3	...
Veterans Admin. Hospital[1-3]	Cleveland	G. Austen, Jr.	228	13	1	3	3	...
Veterans Admin. Hospital[1-3]	Dayton, Ohio	H. I. Berman	803	16	1	3	3	...
Veterans Admin. Hospital[1-3]	Portland, Ore.	D. P. Paull	440	9	..	1	1	...
Veterans Admin. Hospital[1-3]	Philadelphia		342	19	1	3	3	...
Veterans Admin. Hospital[1]	Pittsburgh	C. A. Kuehn	308	17	2	5	3	...
Veterans Admin. Hospital[1-3]	Memphis, Tenn.	W. S. Bradley, Jr.	719	15	1	3	3	...
Veterans Admin. Hospital[1-3]	Dallas, Texas	R. C. Smith	198	9	1	2	2	...
Veterans Admin. Hospital[1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)						
Veterans Admin. Hospital[1-3]	McKinney, Texas	P. A. Duff	299	5	1	1	3	...
Veterans Admin. Hospital[1]	White River Junction, Vt.	(See Dartmouth Medical College Hospitals, Hanover, N. H.)						
Veterans Admin. Hospital[1-3]	Richmond, Va.	R. O. Bunts	1,187	6	1	3	3	...
Veterans Admin. Hospital[1-3]	(Wood) Milwaukee	R. S. Irwin	689	24	1	3	3	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Carraway Methodist Hospital[1-3]	Birmingham, Ala.	L. Timberlake-H. Hudson	365	2	1	1	3	250
University Hospital and Hillman Clinic[1-3]	Birmingham, Ala.	B. Barelare	396	7	1	3	3	108
Lloyd Noland Hospital[1-3]	Fairfield, Ala.	V. Scott	391	..	1	1	1	225
University Hospital[1-3]	Little Rock, Ark.	J. W. Headstream	229	1	..	3	3	165
Los Angeles County General Hospital[1]	Los Angeles	J. J. Crane	3,144	62	4	7	3	200
Presbyterian Hospital-Olmsted Memorial[1-3]	Los Angeles	T. O. Powell	1,053	1	..	2	2	125
White Memorial Hospital[1-3]	Los Angeles	R. W. Barnes	449	5	1	3	3	146
Highland-Alameda County Hospital	Oakland, Calif.		...	..	..	..	3	...
San Diego County General Hospital[1-3]	San Diego, Calif.	R. B. Mullenix	359	11	1	3	3	150
Southern Pacific General Hospital[1-3]	San Francisco	T. E. Gibson	520	2	1	3	3	150
Stanford University Hospitals			...	..	..	..	3	...
San Francisco Hospital (Stanford University Service)[3]	San Francisco	W. A. Sumner	506	7	1	2	..	175
Stanford University Hospital[1-3]	San Francisco	H. M. Weyrauch	474	4	1	3	3	80
University of California Hospitals			...	..	..	..	3	...
Franklin Hospital[1-3]	San Francisco	J. W. Schulte	472	5	1	2	..	116
San Francisco Hospital (University of California Service)[3]	San Francisco	S. Olsen	566	6	1	1	..	175
University of California Hospital[1-3]	San Francisco	D. R. Smith	535	1	..	3	..	87
Santa Clara County Hospital[1]	San Jose, Calif.	E. W. McElligott	191	6	..	1	..	...
Harbor General Hospital[1-3]	Torrence, Calif.	E. Belt	545	19	1	3	3	200
University of Colorado Medical Center								
Colorado General Hospital[1-3]	Denver	D. R. Higbee	253	3	1	3	3	150
Denver General Hospital[1-3]	Denver	D. E. Newland	288	10	..	..	3	...
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	B. M. Harvard	924	18	..	2	3	50
Hospital of St. Raphael[3]	New Haven, Conn.	L. Maurer	777	..	1	3	3	125
Waterbury Hospital[1]	Waterbury, Conn.	C. H. Neuswanger	410	3	1	2	2	225
Delaware Hospital[1-3]	Wilmington, Del.	B. S. Vallett	492	4	1	2	3	180
District of Columbia General Hospital[1-3]	Washington, D. C.	R. Baker-L. Culbertson	335	4	1	3	3	143
Duval Medical Center[1-3]	Jacksonville, Fla.	R. B. McIver	336	9	..	1	2	175
St. Vincent's Hospital[1-3]	Jacksonville, Fla.	R. B. McIver	488	1	1	2	2	135
Jackson Memorial Hospital[1-3]	Miami, Fla.	W. L. Fitzgerald	1,220	12	1	4	3	75
Orange Memorial Hospital[1-3]	Orlando, Fla.	L. M. Orr	978	12	1	3	3	150
Grady Memorial Hospital[1-3]	Atlanta, Ga.	M. K. Bailey	820	7	2	6	3	20
University Hospital[1-3]	Augusta, Ga.	J. R. Rinker	506	5	1	1	3	160
Cook County Hospital[1-3]	Chicago	W. J. Baker	889	19	4	4	3	...
Mercy Hospital[1-3]	Chicago	H. E. Landes	930	5	1	3	3	100
Michael Reese Hospital[1-3]	Chicago	I. Shapiro	916	11	1	3	3	50
Mount Sinai Hospital[1-3]	Chicago	L. A. Maslow	314	1	1	1	2	100
Northwestern University Medical Center								
Chicago Wesley Memorial Hospital[1-3]	Chicago	V. J. O'Conor	925	5	1	2	3	50
Evanston Hospital[1-3]	Evanston, Ill.	J. Farrell	454	6	1	1	1	...
Presbyterian Hospital[1]	Chicago	N. J. Heckel	750	5	1	2	3	125

Numerical and other references will be found on page 363.

28. UROLOGY—*Continued*

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
St. Luke's Hospital [1-3]	Chicago	T. P. Grauer	588	8	1	2	3	50
University of Chicago Clinics [1-3]	Chicago	C. W. Vermeulen	463	18	1	3	3	175
University of Illinois Research and Educational Hospitals [1]	Chicago	J. H. Kiefer	276	5	..	1	3	...
Indianapolis General Hospital [1-3]	Indianapolis	J. E. Balch	301	9	1	4	3	165
Indiana University Medical Center [1]	Indianapolis	R. Garrett	264	4	1	4	3	165
Methodist Hospital [1-3]	Indianapolis	J. M. Young	1,975	10	1	2	1	273
University Hospitals [1-3]	Iowa City	R. H. Flocks	2,055	44	3	8	3	118
University of Kansas Medical Center [1-3]	Kansas City, Kan.	W. Valk	...	..	..	..	3	...
University Hospital [1-3]	Kansas City, Kan.		868	16	2	6	..	125
Veterans Admin. Hospital [1]	Kansas City, Mo.		261	14	..	2	..	...
St. Joseph Hospital [1-3]	Lexington, Ky.	E. H. Ray	637	8	1	1	1	230
Louisville General Hospital [1-3]	Louisville, Ky.	R. Lich, Jr.	326	2	..	3	3	105
Charity Hospital of Louisiana								
Independent Unit [1]	New Orleans	R. J. Mailhes	655	5	1	3	3	100
Louisiana State University Unit [1]	New Orleans	H. T. Beacham	795	11	2	6	3	100
Tulane University Unit [1]	New Orleans	E. Burns	888	15	2	6	3	100
Ochsner Foundation Hospital [1]	New Orleans	E. Burns	383	4	1	3	3	200
Confederate Memorial Medical Center [1]	Shreveport, La.	R. K. Womack	788	5	1	3	3	125
Johns Hopkins Hospital [1-3]	Baltimore	W. W. Scott	965	16	..	4	3	20
Sinai Hospital [1-3]	Baltimore	B. S. Abeshouse	701	13	1	4	3	110
University Hospital [1-3]	Baltimore	W. H. Toulson	435	8	1	2	3	50
Beth Israel Hospital [1-3]	Boston	G. C. Prather	453	3	1	1	2	100
Boston City Hospital [1-3]	Boston	F. G. Sheddan, Jr.	514	2	..	4	3	162
Massachusetts General Hospital [1-3]	Boston	W. F. Leadbetter	1,029	8	1	2	3	800
Massachusetts Memorial Hospitals [1-3]	Boston	S. Vose	344	3	1	3	3	50
New England Center Hospital [1-3]	Boston	W. F. Leadbetter	259	2	1	1	1	125
Peter Bent Brigham Hospital [1-3]	Boston	J. H. Harrison	...	..	..	1	2	42
Mount Auburn Hospital [1-3]	Cambridge, Mass.	W. F. Leadbetter	259	2	1	1	1	125
Salem Hospital [1-3]	Salem, Mass.	E. L. Peirson	492	4	..	1	1	150
University Hospital [1-3]	Ann Arbor, Mich.	R. M. Nesbit	1,370	12	2	6	3	175
Grace Hospital [1-3]	Detroit	G. C. Burr	1,344	10	1	2	3	225
Harper Hospital [1-3]	Detroit	G. Sewell	1,536	26	1	3	3	225
Henry Ford Hospital [1-3]	Detroit	A. W. Bohne	748	7	2	6	3	225
Receiving Hospital [1-3]	Detroit	D. J. Jaffar	577	17	1	3	3	270
Wayne County General Hospital and Infirmary [1-3]	Eloise, Mich.	W. L. Sherman	...	..	1	3	3	279
Blodgett Memorial Hospital [1-3]	Grand Rapids, Mich.	J. A. Ryan	500	3	1	2	2	225
Minneapolis General [1-3]—St. Mary's Hospitals [1-3]	Minneapolis	T. H. Sweetser, Sr.	909	19	2	3	3	182
University of Minnesota Hospitals [1-3]	Minneapolis	C. D. Creevy	819	19	1	4	3	162
Mayo Foundation [1-3]	Rochester, Minn.	G. J. Thompson	3,541	32	5	15	3	150
Ancker [1-3]—Charles T. Miller Hospitals [1]	St. Paul	F. E. B. Foley	877	15	1	4	3	162
Kansas City General Hospital No. 1 [1-3]	Kansas City, Mo.	A. L. Stockwell	364	1	1	3	3	150
Research Hospital [1-3]	Kansas City, Mo.	R. L. Hoffman	491	4	1	3	3	150
Barnes Hospital [1-3]	St. Louis	J. J. Cordonnier	967	12	1	3	3	50
Homer G. Phillips Hospital [1-3]	St. Louis	M. Abrams	447	5	..	4	3	215
Missouri Baptist Hospital [1-3]	St. Louis	C. E. Burford	813	12	1	1	1	175
Missouri Pacific Hospital [3]	St. Louis	A. E. Vitt	580	4	1	3	2	...
St. Louis City Hospital [1-3]	St. Louis	C. Wattenberg-W. Melick	328	9	1	3	3	190
St. Mary's Group of Hospitals [1-3]	St. Louis	C. E. Burford	651	3	1	3	3	100
Dartmouth Medical College Hospitals			737	13	1	3	3	189
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	W. L. McLaughlin	...	..	..	..	..	...
Veterans Admin. Hospital [1]	White River Junction, Vt.	W. L. McLaughlin	...	..	..	..	..	...
Bayonne Hospital and Dispensary [3]	Bayonne, N. J.	A. J. Balsamo	732	1	1	2	3	125
Jersey City Medical Center [1-3]	Jersey City, N. J.	E. J. Daly	588	4	1	3	3	125
Harrison S. Martland Medical Center [1-3]	Newark, N. J.	E. Seidman	336	7	1	2	3	162
Orange Memorial Hospital [1-3]	Orange, N. J.	W. P. Burpeau-J. K. DeVries	525	7	1	1	2	150
Albany Hospital [1-3]	Albany, N. Y.	J. Heslin	965	17	1	3	3	...
Jewish Hospital [1-3]	Brooklyn	L. Baretz	715	8	1	2	2	75
Kings County Hospital								
County Service	Brooklyn	G. Horton	843	6	1	3	3	104
University Service [1-3]	Brooklyn	F. C. Hamm	651	11	1	3	..	104
Long Island College Hospital [1-3]	Brooklyn	F. L. Senger	647	3	1	3	3	75
Maimonides Hospital [1-3]	Brooklyn	H. Herman-F. Senger	1,005	5	..	3	3	75
Methodist Hospital [1-3]	Brooklyn	O. P. Schoenemann	731	5	1	1	3	175
Buffalo General Hospital [1-3]	Buffalo	O. J. Oberkircher	891	3	1	2	3	175
Edward J. Meyer Memorial Hospital [1]	Buffalo		343	14	1	3	3	179
Millard Fillmore Hospital [1-3]	Buffalo	G. E. Slotkin	773	1	1	3	3	255
Meadowbrook Hospital [1-3]	Hempstead, N. Y.	R. M. Bowles	498	18	1	3	3	225
Queens Hospital Center [1-3]	Jamaica, N. Y.	E. Rubin	320	10	1	3	3	105
Bellevue Medical Center								
Division II-Cornell University [1-3]	New York City	J. W. Draper	543	7	1	4	3	71
Division IV-New York University Post-Graduate Medical School [1-3]	New York City	R. S. Hotchkiss	488	8	2	7	3	71
Beth Israel Hospital [1-3]	New York City	S. F. Wilhelm	720	6	1	3	3	120

Numerical and other references will be found on page 363.

28. UROLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Fordham Hospital[1-3]	New York City	L. V. Smiley	285	7	1	2	1	105
French Hospital[1-3]	New York City	J. D. Cooney	512	5	1	3	3	83
Lincoln Hospital[1-3]	New York City	F. P. Twinem	186	6	1	2	3	105
Metropolitan Hospital[1-3]	New York City	T. J. Kirwin	447	1	1	2	2	104
Morrisania City Hospital[1-3]	New York City	J. J. Roth	722	16	2	4	3	105
Mount Sinai Hospital[1-3]	New York City	G. Oppenheimer	999	14	3	5	3	50
New York City Hospital[1-3]	New York City	G. A. Fiedler	273	9	1	2	2	104
New York Hospital[1-3]	New York City	V. Marshall	1,085	..	4	6	3	34
New York Polyclinic Medical School and Hospital[1-3]	New York City	J. S. Ritter	674	3	1	3	3	...
Presbyterian Hospital[1-3]	New York City	G. F. Cahill	1,592	11	2	6	3	208
Roosevelt Hospital[1-3]	New York City	S. A. Beisler	560	6	1	3	3	116
St. Clare's Hospital[1-3]	New York City	G. H. Fiedler	275	3	1	3	3	125
St. Luke's Hospital[1-3]	New York City	J. A. Taylor	540	3	1	3	3	75
Strong Memorial-Rochester Municipal Hospital[1-3]	Rochester, N. Y.	W. W. Scott	8,771	..	1	3	3	...
Charlotte Memorial Hospital[1]	Charlotte, N. C.	H. McKay	1,493	7	1	4	3	250
Duke University Hospital[1-3]	Durham, N. C.	E. P. Alyea	576	4	2	8	3	150
Watts Hospital[1-3]	Durham, N. C.	L. O. Roberts	580	5	1	3	2	100
North Carolina Baptist Hospitals[1-3]	Winston-Salem, N. C.	F. K. Garvey	703	6	1	3	3	125
City Hospital[1-3]	Akron, Ohio	W. A. Keitzer	895	..	1	3	3	250
Cincinnati General Hospital[1-3]	Cincinnati	T. B. Wayman	616	23	3	9	3	50
City Hospital[1-3]	Cleveland	H. R. Trattner	290	7	..	2	3	178
Cleveland Clinic Hospital[1-3]	Cleveland	C. C. Higgins	1,207	11	3	6	3	175
University Hospitals[1-3]	Cleveland	J. J. Joelson	683	5	..	2	2	125
Ohio State University Hospitals								
University Hospital[1-3]	Columbus, Ohio	W. N. Taylor	788	10	2	6	3	150
Huron Road Hospital[1-3]	East Cleveland, Ohio	V. O. Laughlin	609	7	1	3	3	210
St. Vincent's Hospital[1-3]	Toledo, Ohio	E. A. Ockuly	1,060	9	1	3	3	225
University Hospitals[1-3]	Oklahoma City	D. W. Branham	336	5	1	2	3	85
St. John's Hospital[1-3]	Tulsa, Okla.	B. H. Blocksom	887	7	1	3	3	...
St. Vincent's Hospital[1-3]	Portland, Ore.	J. R. Hand	1,107	13	1	2	2	175
University of Oregon Medical School Hospitals and Clinics[1-3]	Portland, Ore.	C. V. Hodges	454	18	1	4	3	...
Allentown Hospital[1-3]	Allentown, Pa.	W. C. Masonheimer	923	9	1	1	2	225
George F. Geisinger Memorial Hospital[1-3]	Danville, Pa.	W. I. Buchert	1,088	5	1	3	3	125
St. Vincent's Hospital[1-3]	Erie, Pa.	E. Hess	1,092	12	1	4	3	100
Episcopal Hospital[1-3]	Philadelphia	G. D. Shoup	384	5	2	2	3	150
Germantown Dispensary and Hospital[1-3]	Philadelphia	F. P. Massaniso	572	1	1	1	1	150
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	C. A. W. Uhle	201	1	1	1	1	...
Hahnemann Medical College and Hospital[3]	Philadelphia	E. W. Campbell	895	7	1	3	3	75
Hospital of the University of Pennsylvania[1-3]	Philadelphia	B. Hughes	894	9	1	4	3	125
Jefferson Medical College Hospital[1-3]	Philadelphia	T. R. Fetter	1,102	11	..	4	3	40
Lankenau Hospital[1-3]	Philadelphia	C. A. W Uhle	419	8	1	2	2	100
Pennsylvania Hospital[1-3]	Philadelphia	L. B. Greene	434	4	2	2	3	20
Philadelphia General Hospital[1-3]	Philadelphia	L. McCrea	413	11	1	4	3	113
Presbyterian Hospital[1-3]	Philadelphia	F. G. Harrison, Sr.	346	8	1	1	2	100
Temple University Hospital[1-3]	Philadelphia	K. B. Conger	639	6	1	2	3	...
Allegheny General Hospital[1]	Pittsburgh	J. L. Hamilton	826	13	2	2	3	200
Mercy Hospital[1-3]	Pittsburgh	C. C. Altman	631	1	1	2	3	175
Pittsburgh Medical Center[1-3]	Pittsburgh	J. J. Lee	491	4	1	3	3	125
Robert Packer Hospital[1-3]	Sayre, Pa.	W. Baurys	560	11	..	1	3	150
Mercy Hospital[1-3]	Wilkes-Barre, Pa.	P. P. Mayock	261	..	1	1	1	300
Wilkes-Barre General Hospital[1-3]	Wilkes-Barre, Pa.	W. J. Daw	825	7	1	2	2	225
Rhode Island Hospital[1-3]	Providence, R. I.	H. K. Turner	817	10	1	1	2	100
Roper Hospital[1-3]	Charleston, S. C.	J. J. Ravenel	789	3	1	3	3	...
Orangeburg Regional Hospital[3]	Orangeburg, S. C.	L. P. Thackston	1,531	12	1	2	3	200
Baptist Memorial Hospital[1-3]	Memphis, Tenn.	H. D. Woodson	1,545	11	..	1	1	100
John Gaston Hospital[1-3]	Memphis, Tenn.	S. Raines	762	13	2	6	3	35
Vanderbilt University Hospital[1-3]	Nashville, Tenn.	C. E. Haines	259	2	1	3	3	50
Parkland Memorial Hospital[1-3]	Dallas, Texas	H. Spence	370	4	1	2	3	50
University of Texas Medical Branch Hospitals[1-3]	Galveston, Texas	R. E. Cone	536	6	1	3	3	...
Baylor University College of Medicine Affiliated Hospitals								
Jefferson Davis Hospital[1-3]	Houston, Texas	J. R. Blundell	428	15	..	2	3	...
St. Joseph's Hospital[1]	Houston, Texas	M. K. O'Heeron	811	4	1	1	1	175
Veterans Admin. Hospital[1-3]	Houston, Texas	J. R. Blundell	557	10	1	3	1	...
Hermann Hospital[1]	Houston, Texas	C. M. Crigler	2,302	11	2	4	3	100
Mary Fletcher Hospital[1-3]	Burlington, Vt.	P. R. Powell	405	4	1	3	3	100
University of Virginia Hospital[1-3]	Charlottesville, Va.	S. A. Vest	658	8	2	5	3	50
Medical College of Virginia-Hospital Division[1-3]	Richmond, Va.	A. I. Dodson	767	7	1	3	3	75
King County Hospital Unit No. 1 (Harborview)	Seattle	D. F. McDonald	478	17	..	1	2	110
La Crosse Lutheran Hospital[1-3]	La Crosse, Wis.	A. H. Gundersen	444	3	1	1	1	300
Madison General Hospital[1-3]	Madison, Wis.	P. R. Kundert	835	16	1	1	3	150
University Hospitals[1]	Madison, Wis.	J. B. Wear	498	13	1	3	3	50
Milwaukee County Hospital[1-3]	Milwaukee	R. S. Irwin	709	15	1	3	3	209
San Juan City Hospital[1-3]	San Juan, P. R.	L. A. Sanjurjo	178	2	1	2	3	150

Numerical and other references will be found on page 363.

AFFILIATING SERVICES

The following hospitals (affiliating) offer acceptable training that is integrated with or contributory to the approved program of the sponsoring hospital (parent).

Parent Hospital	Location	Affiliating Hospitals
Children's Hospital	Birmingham, Ala.	Ped.—Crippled Children's.
Lloyd Noland Hospital	Fairfield, Ala.	Ortho. Surg.—Crippled Children's.
Veterans Administration Hospital	Tuskegee, Ala.	Int. Med., Surg.—John A. Andrew Memorial, Tuskegee Institute.
St. Joseph's Hospital	Phoenix, Ariz.	Ob.-Gyn., Surg.—Maricopa County.
Tucson Medical Center	Tucson, Ariz.	Int. Med., Surg.—Pima County.
Arkansas Baptist Hospital	Little Rock, Ark.	Ophth.—University.
Arkansas State Hospital	Little Rock, Ark.	Psych.—Veterans Administration, North Little Rock, Ark.
University Hospital	Little Rock, Ark.	Path., Urol.—Missouri Pacific Hospital, State, Veterans Administration.
Agnews State Hospital	Agnew, Calif.	Psych.—Langley Porter Clinic-Hospital, San Francisco, Calif.
Compton Sanitarium	Compton, Calif.	Psych.—Los Angeles County General, White Memorial, Los Angeles.
General Hospital of Fresno County	Fresno, Calif.	Ped.—Valley Children's; Surg.—Stanford University Hospital, San Francisco.
Glendale Sanitarium and Hospital	Glendale, Calif.	Int. Med.—Los Angeles County General, Los Angeles; Surg.—White Memorial, Los Angeles.
Napa State Hospital	Imola, Calif.	Psych.—Langley Porter Clinic-Hospital, San Francisco.
Arroyo Del Valle Santorium	Livermore, Calif.	Pul. Dis.—Highland-Alameda County, Oakland, Calif.
Loma Linda Hospital and Sanitarium	Loma Linda, Calif.	Path.—San Bernardino County Charity, San Bernardino, Calif., White Memorial, Los Angeles.
Veterans Administration Hospital	Long Beach, Calif.	Int. Med., Neuro. Surg.—Children's, Los Angeles, Harbor General, Torrance, Calif.; Rad.—Los Angeles County General, Los Angeles; Surg.—Children's, Los Angeles.
California Babies and Children's Hospital	Los Angeles	Ped.—California, San Diego County General, San Diego, Calif.
California Hospital	Los Angeles	Int. Med.—Orange County, Orange, Calif., Collis P. and Howard Huntington Memorial, Pasadena, Calif., Santa Monica, Santa Monica, Calif.; Ob., Surg.—Orange County, Orange, Calif., Santa Monica, Santa Monica, Calif.
Childrens Hospital	Los Angeles	Ped.—Hollywood Presbyterian-Olmsted Memorial, Los Angeles County General, Orange County, Orange, Calif.
Hollywood Presbyterian-Olmsted Memorial Hospital	Los Angeles	Urol.—Children's.
Los Angeles County General Hospital	Los Angeles	Anes.—Rancho Los Amigos, Hondo, Calif., Children's, Olive View Sanatorium, Olive View, Calif.; Otol.—Children's.
Los Angeles Eye and Ear Hospital	Los Angeles	Ophth., Otol.—Children's, Los Angeles County General.
Veterans Administration Hospital	Los Angeles	Psych.—Child Guidance Clinic, Los Angeles County Juvenile Hall, Marion Davies Clinic; Plas. Surg.—Integrated training of one year to meet requirements of American Board of Plastic Surgery available in an approved preceptorship.
White Memorial Hospital	Los Angeles	Anes.—Children's; Neuro., Neuro. Surg.—Metropolitan, Norwalk, Calif.; Ortho. Surg., Proct., Surg.—Glendale Sanitarium and Hospital, Glendale, Calif.; Ped.—Los Angeles County General, Pacific Colony, Spadra, Calif.
Bret Harte Sanatorium	Murphys, Calif.	Pul. Dis.—San Joaquin General, French Camp, Calif.
Metropolitan State Hospital	Norwalk, Calif.	Psych.—Camarillo State, Camarillo, Calif., Los Angeles County General, Veterans Administration, White Memorial, Los Angeles, California Youth Authority Reception Center, Pasadena Child Guidance Center, Pasadena, Calif., Pacific State, Spadra, Calif.
Children's Hospital of the East Bay	Oakland, Calif.	Ped.—Highland-Alameda County.
Highland-Alameda County Hospital	Oakland, Calif.	Int. Med.—Samuel Merritt, Fairmount Hospital of Alameda County, San Leandro, Calif.; Ob.-Gyn., Surg., Thor. Surg.—Samuel Merritt.
Peralta Hospital	Oakland, Calif.	Surg.—Highland-Alameda County.
Samuel Merritt Hospital	Oakland, Calif.	Surg.—Highland-Alameda County.
Veterans Administration Hospital	Palo Alto, Calif.	Psych.—Cowell, State Mental Hygiene Clinic, Berkeley, Calif., Veterans Administration, Oakland, Calif., Langley Porter Clinic-Hospital, Stanford-Lane, Veterans Administration Mental Hygiene Clinic, San Francisco, Child Guidance Clinic, San Mateo, Calif.
Collis P. and Howard Huntington Memorial Hospital	Pasadena, Calif.	Ob.-Gyn.—Woman's.
Patton State Hospital	Patton, Calif.	Psych.—San Bernardino County, San Bernardino, Calif., Langley Porter Clinic-Hospital, San Francisco.
Sequoia Hospital	Redwood City, Calif.	Gen'l Pract.—County Community, San Mateo, Calif.
Franklin Hospital	San Francisco	Int. Med., Ortho. Surg., Path., Plas. Surg., Surg., Urol.—University of California Hospital.
Shriners Hospital for Crippled Children	San Francisco	Ortho. Surg.—Hospital for Women and Children.
University of California Hospital	San Francisco	Int. Med.—Ernest V. Cowell Memorial, Berkeley, Calif., Langley Porter Clinic-Hospital, San Francisco; Neuro. Surg.—Franklin, San Francisco; Ob.-Gyn.—Herrick Memorial, Berkeley, Calif., Highland-Alameda County, Oakland, Calif., St. Luke's, San Francisco; Ophth., Otol.—San Francisco, Southern Pacific; Ped.—Children's, Hospital for Women and Children, Franklin, Langley Porter Clinic-Hospital, San Francisco, Shriners Hospital for Crippled Children; Rad.—San Francisco; Surg.—Mills Memorial, San Francisco.
Veterans Administration Hospital	San Francisco	Neuro., Surg.—Stanford University, University of California.
Santa Clara County Hospital	San Jose, Calif.	Ob.-Gyn.—San Jose; Ortho. Surg.—University of Iowa Hospitals, Iowa City.
Santa Barbara Cottage Hospital	Santa Barbara, Calif.	Int. Med., Surg.—Santa Barbara General.
Harbor General Hospital	Torrance, Calif.	Int. Med., Ped.—Los Angeles County General, Los Angeles; Urol.—Veterans Administration.
Children's Hospital	Denver	Ped.—Booth Memorial, National Jewish, St. Joseph's.
Colorado Psychopathic Hospital	Denver	Psych.—Denver General, Veterans Administration.
Denver General Hospital	Denver	All Services—Colorado General.
National Jewish Hospital	Denver	Pul. Dis., Thor. Surg.—Children's.
St. Luke's Hospital	Denver	Path., Surg.—Children's.
Veterans Administration Hospital	Denver	Ortho. Surg.—Denver General; Path.—Children's, St. Luke's; Psych.—Colorado General, Colorado Psychopathic; Rad.—Children's; Surg.—Denver General, General Rose Memorial.
St. Vincent's Hospital	Bridgeport, Conn.	Int. Med., Ob., Surg.—New York University-Bellevue Medical Center, New York City.
Hartford Hospital	Hartford, Conn.	Anes.—J. J. McCook Memorial, Newington Home and Hospital for Crippled Children, Newington, Conn., Veterans Administration, Newington, Conn., Beverly, Beverly, Mass., Holyoke, Holyoke, Mass.; Int. Med.—Cedarcrest State Tuberculosis Sanatorium, Veterans Administration, Newington, Conn., Uncas-on-Thames State Tuberculosis Sanatorium, Norwich, Conn.; Neuro. Surg.—Grace-New Haven Community, New Haven, Conn.; Ob.-Gyn.—Veterans Administration, Newington, Conn.; Path.—Cedarcrest State Tuberculosis Sanatorium, Uncas-on-Thames State Tuberculosis Sanatorium, Norwich, Conn., Day-Kimball, Putnam, Conn., Johnson Memorial, Stafford Springs, Conn., Windham Community Memorial, Willimantic, Conn.; Ped.—Grace-New Haven Community, New Haven, Conn.; Rad.—Veterans Administration, Newington, Conn.; Surg.—Veterans Administration, Newington, Conn., State Veterans Home and Hospital, Rocky Hill, Conn., Memorial, New York City.

Numerical and other references will be found on page 363.

AFFILIATING SERVICES — Continued

Parent Hospital	Location	Affiliating Hospitals
Institute of the Living	Hartford, Conn	Psych.—Hartford.
St. Francis Hospital	Hartford, Conn	Int. Med.—Uncas-on-Thames State Tuberculosis Sanatorium, Norwich, Conn.; Ped.—J. J. McCook Memorial, St. Agnes Home, Newington Home and Hospital for Crippled Children, Newington, Conn.
Silver Hill Foundation	New Canaan, Conn	Psych.—Greenwich, Greenwich, Conn., Norwalk, Norwalk, Conn., St. Joseph's, Stamford, Stamford, Conn.
Grace-New Haven Community Hospital	New Haven, Conn	Int. Med.—Uncas-on-Thames State Tuberculosis Sanatorium, Norwich, Conn.; Ped.—Hospital of St. Raphael, Southbury Training School; Surg.—Uncas-on-Thames State Tuberculosis Sanatorium, Windham Memorial.
Hospital of St. Raphael	New Haven, Conn	Int. Med.—Laurel Heights Sanatorium, Shelton, Conn.
Norwich State Hospital	Norwich, Conn	Psych.—Hartford, Hartford, Conn.
State of Connecticut Veterans Home and Hospital	Rocky Hill, Conn	Phys. Med.—Hartford, Hartford, Conn., Grace-New Haven Community, New Haven, Conn., Newington Home and Hospital for Crippled Children, Newington, Conn.
Laurel Heights State Tuberculosis Sanatorium	Shelton, Conn	Pul. Dis.—Grace-New Haven Community, New Haven, Conn.
Charlotte Hungerford Hospital	Torrington, Conn	Gen'l Pract.—Waterbury, Waterbury, Conn.
Veterans Administration Hospital	West Haven, Conn	Int. Med., Psych.—Grace-New Haven Community, New Haven, Conn.; Rad.—Hospital of St. Raphael, New Haven, Conn.; Surg.—Grace-New Haven Community, New Haven, Conn., Stamford, Stamford, Conn.
Armed Forces Institute of Pathology	Washington, D. C	Path.—Soldiers Home.
Army Medical Center	Washington, D. C	Thor. Surg.—Glen Dale Tuberculosis Sanatorium, Glen Dale, Md.
Central Dispensary and Emergency Hospital	Washington, D. C	Surg.—Children's, Suburban, Bethesda, Md.
Children's Hospital	Washington, D. C	Ped.—Garfield Memorial.
Doctor's Hospital	Washington, D. C	Surg.—Eastern Dispensary and Casualty.
Eastern Dispensary and Casualty Hospital	Washington, D. C	Gen'l Pract.—Sibley Memorial.
Episcopal Eye, Ear and Throat Hospital	Washington, D. C	Ophth.—Children's, Emergency; Otol.—Children's, District of Columbia General, Georgetown University.
Freedman's Hospital	Washington, D. C	Ped.—Children's, District of Columbia General.
Garfield Memorial Hospital	Washington, D. C	Surg.—Children's.
Georgetown University Hospital	Washington, D. C	Psych.—District of Columbia General, Veterans Administration, Seton, Baltimore; Int. Med.—Prince George General, Cheverly, Md., Arlington, Arlington, Va.
George Washington University Hospital	Washington, D. C	Ped.—Children's; Surg.—District of Columbia General, St. Elizabeth, Veterans Administration, Martinsburg, W. Va.
St. Elizabeth's Hospital	Washington, D. C	Psych.—George Washington University.
Sibley Memorial Hospital	Washington, D. C	Ob.-Gyn.—Central Dispensary and Casualty.
Veterans Administration Hospital	Washington, D. C	Int. Med.—Georgetown University, George Washington University; Urol.—Children's.
Veterans Administration Hospital	Coral Gables, Fla	Int. Med.—National Children's Cardiac Home, Miami, Fla.; Path.—Mercy Hospital, Miami, Fla.; Surg.—Variety Children's, Victoria, Miami, Fla.
Duval Medical Center	Jacksonville, Fla	Ped.—St. Luke's, Brewster.
St. Vincent's Hospital	Jacksonville, Fla	Gen'l Pract.—Duval Medical Center; Surg.—Brewster.
Jackson Memorial Hospital	Miami, Fla	Ortho. Surg.—Variety Children's.
Mound Park Hospital	St. Petersburg, Fla	Ob.-Gyn., Surg.—American Legion Hospital for Crippled Children.
Crawford W. Long Memorial Hospital	Atlanta, Ga	Ob.-Gyn., Ped.—Grady Memorial.
Georgia Baptist Hospital	Atlanta, Ga	Ped.—Grady Memorial.
Veterans Administration Hospital	Atlanta, Ga	All Services—Grady Memorial, Emory University, Emory University, Ga.
University Hospital	Augusta, Ga	Int. Med.—Battey State, Rome, Ga., Milledgeville State, Milledgeville, Ga.; Ob.-Gyn.—Columbus City, Columbus, Ga., Macon City, Macon, Ga.; Thor. Surg.—Battey State, Rome, Ga.
Veterans Administration Hospital	Augusta, Ga	Int. Med., Psych., Rad., Surg.—University.
Georgia Warm Springs Foundation	Warm Springs, Ga	Phys. Med.—To include one year of training at Emory University Hospital, Emory University, Ga.
Chicago Maternity Center	Chicago	Ob.-Gyn.—Chicago Wesley Memorial.
Chicago State Hospital	Chicago	Psych.—Illinois Neuropsychiatric Institute, Institute for Juvenile Research, Mental Health Center, Psychiatric Institute of the Municipal Court, Dixon State School, Dixon, Ill.
Children's Memorial Hospital	Chicago	Ped.—Chicago Wesley Memorial, Passavant.
Columbus Hospital	Chicago	Int. Med.—Cook County.
Cook County Hospital	Chicago	Int. Med.—May include one year training in hematology.
Frank Cuneo Memorial Hospital	Chicago	Ob.-Gyn.—Columbus.
Illinois Eye and Ear Infirmary	Chicago	Ophth.—Presbyterian, University of Illinois Research and Educational; Otol.—Presbyterian.
Lewis Memorial Maternity Hospital	Chicago	Ob.-Gyn.—Lorretto, Mercy, St. Anne's, St. Vincent's Infant and Maternity.
Mercy Hospital	Chicago	Int. Med., Ped.—City of Chicago Municipal Tuberculosis Sanitarium, LaRabida Jackson Park Sanitarium; Ob.-Gyn.—St. Anne's; Surg.—City of Chicago Municipal Tuberculosis Sanitarium.
Michael Reese Hospital	Chicago	Int. Med.—May include one year in the Medical Research Institute (and Post-Graduate School); Ob.-Gyn.—Chicago Maternity Center; Ped.—Municipal Contagious Disease; Psych.—Municipal Courts and Drexel Home.
Municipal Contagious Disease Hospital	Chicago	Con. Dis.—Presbyterian, Michael Reese, University of Illinois Research and Educational.
Northwestern University Medical Center	Chicago	Anes., Derm. Syph.—Veterans Administration Research; Int. Med., Otol.—Cook County; Neuro.—Chicago Wesley Memorial, Passavant, Veterans Administration Research; Otol.—Michael Reese, St. Luke's; Phys. Med.—Cook County, Rehabilitation Institute; Psych.—Chicago Wesley Memorial, Veterans Administration Research; Urol.—Veterans Administration Research.
Provident Hospital	Chicago	Surg.—Michael Reese.
St. Luke's Hospital	Chicago	Neuro., Psych.—Illinois Neuropsychiatric Institute, University of Illinois Research and Educational.
University of Illinois Research and Educational Hospitals	Chicago	Int. Med.—Municipal Contagious Disease, Presbyterian, Veterans Administration, West Side; Ophth.—Presbyterian; Ophth., Otol.—Illinois Eye and Ear Infirmary; Ped.—Municipal Contagious Disease, La Rabida Jackson Park Sanitarium.
Veterans Administration West Side Hospital	Chicago	Surg.—Veterans Administration, Hines, Ill.
Veterans Administration Hospital	Downey, Ill	Psych.—Chicago Wesley Memorial, Passavant, Veterans Administration Research.
Elgin State Hospital	Elgin, Ill	Psych.—Illinois Neuropsychiatric Institute, Institute for Juvenile Research, Mental Health Centers, Municipal Court, Dixon State School, Dixon, Ill.
Veterans Administration Hospital	Hines, Ill	Anes., Neuro., Psych., Rad.—Women's and Children's, Chicago.
Clinic Hospital	Bluffton, Ind	Surg.—Indiana University Medical Center, Indianapolis.
St. Joseph Hospital	Fort Wayne, Ind	Path.—Veterans Administration.
Indianapolis General Hospital	Indianapolis	Anes., Neuro., Ob.-Gyn., Ophth., Otol., Ped., Psych., Rad.—Indiana University Medical Center, Veterans Administration; Urol.—Methodist.

Numerical and other references will be found on page 363.

AFFILIATING SERVICES — Continued

Parent Hospital	Location	Affiliating Hospitals
Indiana University Medical Center	Indianapolis	Anes.—Veterans Administration (Cold Springs) (General); Int. Med.—Veterans Administration (Cold Springs); Neuro., Psych.—LaRue D. Carter Memorial, Veterans Administration (General); Neuro. Surg., Urol.—Veterans Administration (General); Ob.-Gyn., Otol., Ped.—Indianapolis General; Ophth., Rad.—Indianapolis General, Veterans Administration (General); Surg.—Indianapolis General, Veterans Administration (Cold Springs) (General).
St. Vincent's Hospital	Indianapolis	Ped.—Indianapolis General.
Veterans Administration Hospital	Indianapolis	Int. Med., Surg.—Indianapolis General, Indiana University Medical Center.
Broadlawns-Polk County Hospital	Des Moines, Iowa	Surg.—Iowa Methodist.
Iowa Methodist Hospital	Des Moines, Iowa	Ped., Rad., Surg.—Broadlawns-Polk County.
Veterans Administration Hospital	Des Moines, Iowa	Anes., Rad., Surg.—University of Iowa Hospitals.
State Psychopathic Hospital	Iowa City	Psych.—University of Iowa Hospitals.
Veterans Administration Hospital	Iowa City	Int. Med., Path., Rad., Surg.—University of Iowa Hospitals.
University of Kansas Medical Center	Kansas City, Kan	Anes., Int. Med., Surg.—Veterans Administration
Topeka State Hospital	Topeka, Kan	Psych.—C. F. Menninger Memorial, Veterans Administration.
Veterans Administration Hospital	Wadsworth, Kan	All Services—Children's Mercy, Kansas City General No. 1, Research, St. Joseph's, St. Luke's, Veterans Administration, Kansas City, Mo.
Veterans Administration Hospital	Wichita, Kan	Surg.—Wesley.
Central State Hospital	Lakeland, Ky	Psych.—University of Louisville Hospitals, Louisville, Ky.
U. S. Public Health Service Hospital	Lexington, Ky	Psych.—Louisville Child Guidance Clinic, Louisville, Ky., Cincinnati General, Cincinnati.
Children's Hospital	Louisville, Ky	Ped.—Louisville General.
Louisville General Hospital	Louisville, Ky	Anes., Ophth., Otol., Rad.—Children's, Veterans Administration; Neuro. Surg.—Children's, Norton Memorial, Veterans Administration; Ob.-Gyn.—Kentucky Baptist, St. Joseph's Infirmary; Ped., Surg.—Children's; Urol.—St. Joseph's, Lexington, Ky.
St. Anthony's Hospital	Louisville, Ky	Gen'l Pract.—St. Joseph Infirmary; Ob.-Gyn.—Louisville General.
Veterans Administration Hospital	Louisville, Ky	All Services—Children's, Kentucky Baptist, Kosair Crippled Children's, Louisville General, Norton Memorial Infirmary.
Lafayette Charity Hospital	Lafayette, La	Gen'l Pract., Surg.—Charity Hospital, Louisiana State University Unit, New Orleans.
Charity Hospital	New Orleans	Path.—May include period of three months to one year of Forensic Pathology in the Coroner's Office of the Parish of Orleans.
Hotel Dieu-Sisters Hospital	New Orleans	Ped.—Charity Hospital.
Ochsner Foundation Hospital	*New Orleans*	*Neuro. Surg.—Includes one year of training at* Charity Hospital, Tulane University Service.
Southern Baptist Hospital	New Orleans	Ped.—Charity, Louisiana State University Unit.
Touro Infirmary	New Orleans	Ob.-Gyn., Ortho. Surg., Ped., Rad., Surg.—Charity.
U. S. Public Health Service Hospital	New Orleans	Rad.—Charity.
Veterans Administration Hospital	New Orleans	Ophth., Path., Psych., Rad., Surg., Urol.—Charity.
Central Maine Sanatorium	Fairfield, Maine	Pul. Dis.—Augusta State Hospital, Augusta, Maine, Redington Memorial, Skowhegan, Maine, Thayer Hospital, Waterville, Maine.
Baltimore City Hospital	Baltimore	Int. Med.—May include training in gerontology.
Baltimore Eye, Ear and Throat Hospital	Baltimore	Ophth.—Johns Hopkins.
Bon Secours Hospital	Baltimore	Ob.-Gyn.—Johns Hopkins.
Church Home and Hospital	Baltimore	Surg.—Johns Hopkins, University.
Johns Hopkins Hospital	Baltimore	Int. Med.—May include training in Allergy; Ob.-Gyn.—Boston Lying-In, Boston; Ped.—Baltimore City; Pul. Dis., Thor. Surg.—Veterans Administration; Rad.—U. S. Public Health Service, Veterans Administration; Surg.—Mt. Wilson Sanatarium, Veterans Administration; Urol.—Inlow Clinic, Shelbyville, Ind.
St. Agnes Hospital	Baltimore	Int. Med., Ob.-Gyn., Surg.—Johns Hopkins.
Sinai Hospital	Baltimore	Ped.—Baltimore City, Johns Hopkins.
South Baltimore General Hospital	Baltimore	Ob.—Hospital for the Women of Maryland.
Union Memorial Hospital	Baltimore	Ob.—Hospital for the Women of Maryland.
U. S. Public Health Service Hospital	Baltimore	Int. Med.—Johns Hopkins; Path.—University.
University Hospital	Baltimore	Int. Med.—Veterans Administration; Neuro. Surg., Thor. Surg.—Baltimore, City, Mercy; Ob.—Peninsula General, Salisbury, Md.; Ped.—Union Memorial.
U. S. Naval Hospital	Bethesda, Md	Anes.—Georgetown University Hospit[illegible] Neuro. Psych.—Georgetown University, St. [illegible] Ophth., Otol.—Episcopal Eye, Ear, [illegible] D. C.; Ped.—Children's, District Mun[illegible] Reed Army, Washington, D. C., Children's Convalescent Home, Rockville, Md.
Spring Grove State Hospital	Catonsville, Md	Psych.—Baltimore City, Johns Hopkins, University, Baltimore.
Veterans Administration Hospital	Fort Howard, Md	Derm. Syph., Ophth.—Johns Hopkins, Baltimore; Surg.—University, Baltimore
Washington County Hospital	Hagerstown, Md	Rad.—Johns Hopkins, Baltimore.
Veterans Administration Hospital	Perry Point, Md	Psych.—Johns Hopkins, Kanner's Clinic, Mental Hygiene Clinic, Baltimore; Surg.—Harford Memorial, Havre de Grace, Md., Peninsula General, Salisbury, Md.
Sheppard and Enoch Pratt Hospital	Towson, Md	Psych.—Spring Grove State, Catonsville, Md.
Veterans Administration Hospital	Bedford, Mass	Psych.—Douglas Thom Clinic for Children, James Jackson Putnam Children's Center, Massachusetts General, Veterans Administration, Boston.
Beverly Hospital	Beverly, Mass	Surg.—Peter Bent Brigham, Boston.
Beth Israel Hospital	Boston	Int. Med.—New England Deaconess; Rad.—Boston Psychopathic, Pondville State, Walpole, Mass.; Surg.—Boston City, Soldier's Home, Chelsea, Mass.
Boston City Hospital	Boston	Int. Med., Surg.—May include one year of training in Chronic Diseases at Jewish Hospital, Roxbury, Mass., or Holy Ghost Hospital, Cambridge, Mass., Faulkner, Lahey Clinic, Boston; Mount Auburn, Cambridge, Mass., Lowell General, Lowell, Mass., Newton-Wellesley, Newton Lower Falls, Mass., Quincy City, Quincy, Mass., Salem, Salem, Mass.
Boston Floating Hospital	Boston	Ped.—St. Margaret's, Dorchester, Mass.
Boston Lying-In Hospital	Boston	Ob., Path.—Free Hospital for Women, Brookline, Mass.
Boston Sanitarium	Boston	Pul. Dis., Thor. Surg.—Boston City, 5th and 6th Medical Service.
Boston State Hospital	Boston	Psych.—Beth Israel, Boston Psychopathic, Judge Baker Guidance Center, Massachusetts General, Boston, Worcester State, Worcester, Mass.
Carney Hospital	Boston	Ob.-Gyn.—St. Margarets, Dorchester, Mass.; Surg.—Soldier's Home, Chelsea, Mass.
Faulkner Hospital	Boston	Rad.—Lahey Clinic.
Lahey Clinic	Boston	Anes., Gastro., Int. Med., Neuro. Surg., Ortho. Surg., Rad.—Booth Memorial, New England Deaconess, New England, Massachusetts Women's, Robert Brigham; Neuro. Surg.—Boston Psychopathic, Taunton State, Taunton, Mass.; Rad.—Children's Medical Center, New England Deaconess.
Massachusetts Eye and Ear Infirmary	Boston	Ophth., Otol.—Massachusetts General.

Numerical and other references will be found on page 363.

AFFILIATING SERVICES — Continued

Parent Hospital	Location	Affiliating Hospitals
Massachusetts General Hospital	Boston	Int. Med.—Salem Hospital, Salem, Mass.; Ped.—Charity, New Orleans, Boston Lying-In, Providence Lying-In, Providence, R. I.; Surg.—Snyder-Jones Clinic, Winfield, Kan., Salem Hospital, Salem, Mass., Middlesex County Sanatorium, Waltham, Mass.
Massachusetts Memorial Hospital	Boston	Anes.—Children's Medical Center; Surg.—Boston City, Mattapan Sanatorium, Framingham Union, Framingham, Mass., Lowell General, Lowell, Mass., Truesdale, Fall River, Mass., Westfield Sanatorium, Westfield, Mass.; Urol.—Salem Hospital, Salem, Mass.
New England Center Hospital	Boston	Int. Med., Surg.—May include one year of training in Chronic Diseases at Jewish Hospital, Roxbury, Mass., or Holy Ghost Hospital, Cambridge, Mass.; Anes., Int. Med., Neuro., Neuro. Surg., Path., Psych., Rad., Surg., Urol.—Eastern Maine General, Bangor, Maine, Boston City, Boston Dispensary, Boston Floating, Veterans Administration, Boston, Burbank, Fitchburg, Mass.
New England Deaconess Hospital	Boston	Anes., Rad.—Boston Children's; Int. Med., Surg.—Peter Bent Brigham.
Peter Bent Brigham Hospital	Boston	Anes., Int. Med., Ortho. Surg., Path., Psych., Rad., Surg.—Veterans Administration, West Roxbury, Mass.
U. S. Public Health Service Hospital	Boston	Int. Med.—Evans Memorial, Haynes Memorial, Massachusetts General.
Veterans Administration Hospital	Boston (Jamaica Plain)	Psych.—Children's, Douglas Thom Clinic, Mental Hygiene Clinic; Rad.—Boston Children's; Surg.—Faulkner, Massachusetts General, New England Center.
Free Hospital for Women	Brookline, Mass.	Gyn.—Boston Lying-In, Boston.
Cambridge City Hospital	Cambridge, Mass.	Int. Med.—Cambridge Tuberculosis Sanatorium.
Mount Auburn Hospital	Cambridge, Mass.	Anes.—New England Center, Boston; Ped.—Children's Medical Center, *Boston.*
Lawrence F. Quigley Memorial Hospital	Chelsea, Mass.	Surg.—Beth Israel, Carney, St. Elizabeth, Boston, Newton-Wellesley, Newton Lower Falls, Mass.
U. S. Naval Hospital	Chelsea, Mass.	Ped.—Haynes Memorial, Boston; Surg.—Children's Medical Center, Massachusetts General, New England Deaconess, Boston.
Fall River General Hospital	Fall River, Mass.	Pul. Dis.—Truesdale.
Truesdale Hospital	Fall River, Mass.	Int. Med., Surg.—Fall River General; Path.—Newport, Newport, R. I.
Newton-Wellesley Hospital	Newton Lower Falls, Mass.	Surg.—Soldier's Home, Chelsea, Mass.
[illegible]	Quincy, Mass.	Surg.—Brockton, Brockton, Mass.
[illegible]	Waltham, Mass.	Psych.—Boston Psychopathic, Boston State, Boston.
[illegible]	[illegible]	Phys. Med., Urol.—Peter Bent Brigham, Boston.
Worcester State Hospital	[illegible]	Psych.—Worcester Youth Guidance Center.
Leila Y. Post Montgomery Hospital	[illegible]	Surg.—University, Ann Arbor, Mich.
Veterans Administration Hospital	[illegible]	Psych.—Neuropsychiatric Institute, University.
St. Joseph's Retreat	Dearborn, Mich.	Psych.—Receiving.
Veterans Administration Hospital	Dearborn, Mich.	Int. Med.—Wayne County General, Eloise, Mich.; Rad.—Children's, Detroit Memorial, Herman Kiefer, Womans; Ophth., Path., Psych., Rad., Surg.—Receiving.
Alexander Blain Hospital	Detroit	Int. Med.—University, Ann Arbor, Mich., Herman Kiefer, Receiving; Surg.—University, Ann Arbor, Mich., Receiving.
Children's Hospital	Detroit	Ped.—Herman Kiefer.
Detroit Memorial Hospital	Detroit	Path.—Receiving; Oakwood, Dearborn, Mich.
Florence Crittenton Hospital	Detroit	Ob.-Gyn.—Herman Kiefer.
Grace Hospital	Detroit	Neuro. Surg.—Receiving.
Harper Hospital	Detroit	Int. Med.—Herman Kiefer; Ophth.—Receiving; Ortho. Surg.—Children's, Receiving; Otol.—Children's, Receiving, Herman Kiefer; Ped.—Children's; Surg.—Children's, Detroit Industrial Hospitals, Herman Kiefer, Receiving; Urol.—Herman Kiefer, Receiving.
Henry Ford Hospital	Detroit	Ped.—Herman Kiefer.
Herman Kiefer Hospital	Detroit	Ob.—Receiving.
Jennings Memorial Hospital	Detroit	Int. Med., Surg.—Henry Ford.
Providence Hospital	Detroit	Anes.—Detroit Tubercular Sanitorium; Ped.—Children's.
Receiving Hospital	Detroit	Anes.—Veterans Administration, Dearborn, Mich., Childrens, Herman Kiefer; Gyn.—Herman Kiefer; Int. Med.—Veterans Administration; Ophth.—Veterans Administration, Dearborn, Mich., Children's, Herman Kiefer; Surg.—Veterans Administration, Dearborn, Mich.
Blodgett Memorial Hospital	Grand Rapids, Mich.	Int. Med.—Veterans Administration Hospital, Dearborn, Mich., Cardiac Clinic; Ob.—Evangeline Home and Hospital; Ortho. Surg.—Mary Free Bed Convalescent Home, Veterans Administration, Dearborn, Mich.; Rad., Surg., Urol.—Veterans Administration, Dearborn, Mich.
Ferguson, Droste, Ferguson Hospital	Grand Rapids, Mich.	Proct.—Veterans Administration, Dearborn, Mich., St. Mary's.
Michigan State Sanatorium	Howell, Mich.	Pul. Dis.—University, Ann Arbor, Mich., Maybury Sanatorium, Northville, Mich.
Kalamazoo State Hospital	Kalamazoo, Mich.	Psych.—Caro State, Caro, Mich., Coldwater State Home and Training School, Coldwater, Mich., Lapeer State, Lapeer, Mich.
Northville State Hospital	Northville, Mich.	Psych.—Adult Psychiatric Clinic of Harper Hospitals, Metropolitan Children's Center, Receiving, Detroit, Mich.
Pontiac General Hospital	Pontiac, Mich.	Ob.-Gyn.—Pontiac State; Psych.—St. Joseph's Mercy.
St. Mary's Hospital	Saginaw, Mich.	Gen'l Pract.—Guadalupe Center, St. Francis Home.
Minneapolis General Hospital	Minneapolis	Otol., Ped.—University of Minnesota.
Mount Sinai Hospital	Minneapolis	Surg.—University of Minnesota.
Shriners Hospital for Crippled Children	Minneapolis	Ortho. Surg.—University of Minnesota, Veterans Administration.
University of Minnesota Hospitals	Minneapolis	Neuro.—Anoka State Hospital, Anoka, Minn.
Veterans Administration Hospital	Minneapolis	Int. Med., Neuro., Path., Psych., Rad., Surg.—Minneapolis General, Shriners Hospital for Crippled Children, University of Minnesota, Ancker, St. Paul, Gillette State for Crippled Children, St. Paul.
Mayo Foundation	Rochester, Minn.	Ortho. Surg.—Gillette State Hospital for Crippled Children, St. Paul; Pul. Dis.—Mineral Springs Sanitarium, Nopeming Sanatorium, Nopeming, Minn.
Charles T. Miller Hospital	St. Paul	Ob.-Gyn., Ophth., Path., Rad.—University of Minnesota, Minneapolis; Urol.—Ancker.
Midway Hospital	St. Paul	Gen'l Pract.—Ancker, Mounds Park.
St. Joseph's Hospital	St. Paul	Ob.-Gyn., Surg.—University of Minnesota, Minneapolis.
Veterans Administration Hospital	Gulfport, Miss.	Psych.—Charity, Child Psychiatric Service, Guidance Center, New Orleans.
Mercy Hospital-Street Memorial	Vicksburg, Miss.	Gen'l Pract.—Mississippi State Charity; Surg.—Mississippi State Charity.
Mississippi State Hospital	Whitfield, Miss.	Psych.—University of Mississippi, Jackson, Miss.
Children's Mercy Hospital	Kansas City, Mo.	Ped.—Florence Crittenton Home, St. Luke's.
St. Luke's Hospital	Kansas City, Mo.	Surg.—Children's, Mercy.
Alexian Brothers Hospital	St. Louis	Gen'l Pract.—St. Anthony's.
Barnes Hospital	St. Louis	Otol.—St. Louis City; Psych.—Malcolm Bliss; Surg.—Ellis Fischel State Cancer, Columbia, Mo., Robert Koch, Koch, Mo., St. Louis Children's, St. Louis City, Veterans Administration.
Homer G. Phillips Hospital	St. Louis	Surg.—St. Mary's Infirmary.
Jewish Hospital	St. Louis	Int. Med.—Robert Koch, Koch, Mo.; Ob.-Gyn.—Ellis Fischel State Cancer, Columbia, Mo.; Surg.—St. Louis City.
Missouri Baptist Hospital	St. Louis	Surg.—Ellis Fischel State Cancer, Columbia, Mo.

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AFFILIATING SERVICES — Continued

Parent Hospital	*Location*	*Affiliating Hospitals*
St. Louis Children's Hospital	St. Louis	Ped.—Burge, Springfield, Mo., Jewish, St. Louis County, St. Louis Maternity.
St. Mary's Group of Hospitals	St. Louis	Derm. Syph.—St. Louis City; Int. Med.—St. Louis City, Veterans Administration; Ob.-Gyn.—St. Mary's Infirmary; Ortho. Surg.—St. Louis City; Otol.—St. Louis City; Ped.—St. Louis City, St. Mary's Infirmary; Psych.—St. Louis City, St. Louis State; Rad.—St. Louis City; Surg.—Ellis Fischel State Cancer, Columbia, Mo., St. Louis City, Veterans Administration; Urol.—St. Louis County.
Veterans Administration Hospital	St. Louis	Anes.—St. Mary's Infirmary; Ophth.—Barnes; Otol.—Barnes, St. Louis City; Rad.—Barnard Free Skin and Cancer, Mallinckrodt Institute of Radiology, St. Louis City; Thor. Surg.—Barnes; Surg.—Ellis Fischel State Cancer, Columbia, Mo., St. Louis City; Urol.—Barnes.
Hastings State Hospital	Ingleside, Neb	Psych.—Psychiatric Institute, Omaha.
Norfolk State Hospital	Norfolk, Neb	Psych.—Psychiatric Institute, Omaha.
Bishop Clarkson Memorial Hospital	Omaha	Path.—University of Nebraska.
Lutheran Hospital	Omaha	Psych.—Psychiatric Institute.
Nebraska Methodist Hospital	Omaha	Path.—Children's Memorial.
University of Nebraska Hospital	Omaha	Int. Med.—Veterans Administration; Ob.-Gyn.—Bishop Clarkson, Immanuel Lutheran; Ped.—Children's Memorial; Surg.—Bishop Clarkson Memorial, Nebraska Methodist.
Veterans Administration Hospital	Omaha	Int. Med., Surg.—St. Joseph's.
Atlantic City Hospital	Atlantic City, N. J	Int. Med.—Atlantic City Municipal, Betty Bacharach Home, Children's Seashore Home, Clyde Fish Memorial.
Essex County Isolation Hospital	Belleville, N. J	Con. Dis.—St. Michael's Newark, N. J.
Hunterdon Medical Center	Flemington, N. J	Gen'l Pract.—Bellevue Hospital Center, New York City.
Hackensack Hospital	Hackensack, N. J	Path., Surg.—St. Luke's, New York City.
Jersey City Medical Center	Jersey City, N. J	Ob.—Margaret Hague Maternity.
Monmouth Memorial Hospital	Long Branch, N. J	Ortho. Surg.—Betty Bachrach Home for Crippled Children, New York University Bellevue Medical Center, New York City.
Veterans Administration Hospital	Lyons, N. J	Psych.—State, Greystone Park, N. J., Maplewood, Veterans Administration, East Orange, N. J., Menlo Park Diagnostic Center, Menlo Park, N. J., Veterans Administration Mental Hygiene Clinic, Newark, N. J., Child Guidance Clinic, Orange, N. J., Trenton State, Trenton, N. J.
New Jersey State Hospital	Marlboro, N. J	Psych.—New Jersey Diagnostic Center, Menlo Park, N. J., Central New Jersey Mental Hygiene Clinic, Red Bank, N. J., New Jersey Neuro-Psychiatric Institute, Skillman, N. J., Vineland State School, Vineland, N. J.
Presbyterian Hospital	Newark, N. J	Surg.—Babies Hospital-Coit Memorial, Martland Medical Center.
St. Michael's Hospital	Newark, N. J	Int. Med.—Glen Gardner Sanatorium, Glen Gardner, N. J.; Ped.—Essex County Isolation, Belleville, N. J.
St. Joseph's Hospital	Paterson, N. J	Anes.—Valley View Sanitorium.
Veterans Administration Hospital	Albuquerque, N. Mex	Int. Med.—Bataan Methodist; Surg.—Bernalillo-County Indian Hospital.
Albany Hospital	Albany, N. Y	Plas. Surg.—St. Peter's.
A. N. Brady Hospital	Albany, N. Y	Ob.—Albany.
St. Peter's Hospital	Albany, N. Y	Ped.—A. N. Brady Memorial.
Veterans Administration Hospital	Albany, N. Y	Int. Med., Path., Psych., Surg.—Albany.
Binghamton State Hospital	Binghamton, N. Y	Psych.—Syracuse Psychiatric Institute, Syracuse Psychopathic, Syracuse, N. Y.
Coney Island Hospital	Brooklyn	Surg.—Goldwater Memorial, New York City.
Cumberland Hospital	Brooklyn	Ped.—Kingston Avenue; Rad., Surg.—John E. Jennings.
Jewish Hospital	Brooklyn	Int. Med.—Hillside Hospital, Jewish Chronic Disease; Ped.—Kingston Avenue, Willard Parker.
Kings County Hospital (University Service)	Brooklyn	Neuro. Surg.—Brooklyn State.
Veterans Administration Hospital	Brooklyn	Anes.—Jewish; Ophth.—Brooklyn Eye and Ear; Path., Psych.—Kings County; Rad., Urol.—Long Island College Hospital; Surg.—Long Island Jewish, New Hyde Park, N. Y.; Thor. Surg.—Veterans Administration, Castle Point, N. Y.
Allied Sisters of Charity Hospital	Buffalo	Ob.-Gyn.—Edward J. Meyer Memorial; Int. Med., Surg.—Emergency.
Buffalo General Hospital	Buffalo	Anes., Surg.—Children's, Edward J. Meyer Memorial, Roswell Park Memorial Institute; Int. Med.—Chronic Disease Research Institute; Ob.-Gyn.—Children's Roswell Park Memorial, Peter Bent Brigham, Boston; Neuro. Surg., Otol.—Children's; Urol.—Roswell Park Memorial.
Buffalo State Hospital	Buffalo	Psych.—Edward J. Meyer Memorial, Syracuse Psychopathic, New York State Psychiatric Institute, Syracuse, N. Y.
Edward J. Meyer Memorial Hospital	Buffalo	Anes.—Children's, Millard Fillmore; Int. Med.—Buffalo General; Ophth. —Buffalo Eye and Ear.
Roswell Park Memorial Hospital	Buffalo	Rad.—Buffalo General, Edward J. Meyer Memorial, Strong Memorial-Rochester General, Rochester, N. Y.
Veterans Administration Hospital	Buffalo	Anes., Int. Med., Rad., Surg., Urol.—Buffalo General, Children's, Edward J. Meyer Memorial, Roswell Park Memorial.
Veterans Administration Hospital	Canandaigua, N. Y	Psych.—Strong Memorial-Rochester General, Rochester, N. Y.
Central Islip State Hospital	Central Islip, N. Y	Psych.—New York State Psychiatric Institute, Columbia Presbyterian Medical Center, New York City.
Mary Imogene Bassett Hospital	Cooperstown, N. Y	Surg.—Presbyterian Hospital, New York City.
Flushing Hospital and Dispensary	Flushing, N. Y	Int. Med.—Bellevue Medical Center, New York City; Ob.-Gyn., Surg.—Flower and Fifth Avenue, New York City.
Irvington House	Irvington-on-Hudson, N. Y.	*Card. Dis.—Approved as offering acceptable affiliated training* (maximum three months) in concurrence with the American Board of Pediatrics; Bellevue Medical Center, Divisions III and IV, New York City.
Jamaica Hospital	Jamaica, N. Y	Surg.—Queen's General.
Kings Park State Hospital	Kings Park, N. Y	Psych.—New York State Psychiatric Institute, New York City.
Benedictine Hospital	Kingston, N. Y	Gen'l Pract.—Kingston City Laboratories, Ulster County Tuberculosis Hospital, Ulster County Tumor Clinic.
Middletown State Homeopathic Hospital	Middletown, N. Y	Psych.—New York State Psychiatric Institute, New York City.
Veterans Administration Hospital	Montrose, N. Y	Psych.—Payne Whitney Clinic, New York Hospital, New York City, Letchworth Village, Thiells, N. Y.
Mount Vernon Hospital	Mount Vernon, N. Y	Surg.—New York Hospital, New York City.
Bellevue Medical Center—Division I—Columbia University	New York City	Surg., Thor. Surg.—Presbyterian Medical Center.
Bellevue Medical Center—Division II—Cornell University	New York City	Surg.—Triborough Hospital, Jamaica, N. Y.; Urol.—New York Hospital, Veterans Administration (Manhattan).
Bellevue Medical Center—Division III—New York University College of Medicine	New York City	Int. Med.—May include six months assignment to Department of Rehabilitation and Physical Medicine approved program; Neuro.—University, Veter [illegible] hattan); Ob.-Gyn.—Gouverneur, University; F [illegible] Parker; Phys. Med.—Goldwater Memorial, St [illegible] Grasslands, Valhalla, N. Y.; Psych.—River [illegible] ans Administration Clinic; Veterans Administration (Manhattan); Rad., Surg.—University.

AFFILIATING SERVICES — Continued

Parent Hospital	Location	Affiliating Hospitals
Bellevue Medical Center—Division IV—New York University Post-Graduate Medical School	New York City	Anes.—Goldwater, Memorial, Gouverneur, University; Int. Med.—May include six months assignment to Department of Rehabilitation and Physical Medicine approved program; Gouverneur, University, Veterans Administration (Manhattan); Derm. Syph., Otol., Urol.—University, Veterans Administration (Manhattan); Neuro. Surg.—Central Islip State, Central Islip, University, Veterans Administration (Manhattan); Ophth.—University, St. Vincent's; Ortho. Surg.—Veterans Administration (Manhattan); Surg.—Beekman-Downtown, Gouverneur, Knickerbocker, Manhattan State, University, New York City, Easton Hospital, Easton, Pa.
Beth Israel Hospital	New York City	Int. Med.—Includes one year fellowship in Immuno-Hematology; Neuro. Surg.—Mount Sinai; Surg.—Bellevue Hospital Center.
Bird S. Coler Memorial Hospital and Home	New York City	Int. Med., Phys. Med.—Metropolitan.
City of New York	New York City	Pub. Health—Montefiore.
Francis Delafield Hospital	New York City	Gyn., Rad., Surg.—Presbyterian.
Goldwater Memorial Hospital	New York City	Int. Med., Surg.—Bellevue Hospital Center.
Hospital for Joint Diseases	New York City	Anes.—Beth Israel; Ortho. Surg.—Central Dispensary and Emergency Hospital, Washington, D. C., Harlem, Morrisania City, New York City Hospital.
Manhattan State Hospital	New York City	Psych.—Mount Sinai, Psychiatric Institute, Veterans Administration (Bronx).
Memorial Center for Cancer and Allied Diseases	New York City	Anes.—New York Hospital.
Metropolitan Hospital	New York City	All Services (except Ob.)—Bird S. Coler Memorial.
Montefiore Hospital	New York City	Int. Med.—May include training in "Home Care" Service; Surg.—Beekman-Downtown.
Mount Sinai Hospital	New York City	Ped.—Willard Parker; Neuro. Surg.—Beth Israel.
New York Hospital	New York City	Ortho. Surg.—House of St. Giles the Cripple, Brooklyn, St. Luke's, Seaview, Staten Island; Ortho. Surg., Surg.—Hospital for Special Surgery; Ped.—Hospital for Special Surgery, Memorial Center, Willard Parker; Rad.—Memorial Center.
New York University-Bellevue Medical Center—University Hospital	New York City	Derm. Syph.—Bellevue Medical Center, Veterans Administration (Manhattan); Gyn., Ped.—Gouverneur; Phys. Med.—Bellevue Medical Center, Goldwater Memorial, St. Vincent's, Grasslands, Valhalla, N. Y.; Psych.—Bellevue Medical Center.
Presbyterian Hospital	New York City	Derm. Syph.—Roosevelt.
Roosevelt Hospital	New York City	Ped.—French, Willard Parker; Urol.—Presbyterian Medical Center.
St. Barnabas Hospital for Chronic Diseases	New York City	Path.—St. Agnes, White Plains, N. Y.
St. Clare's Hospital	New York City	Ob.-Gyn.—Margaret Hague Maternity, Jersey City, N. J.; Ped.—Charles V. Chapin, Providence, R. I.
St. Luke's Hospital	New York City	Ped.—Willard Parker.
St. Vincent's Hospital	New York City	Int. Med., Surg.—St. Joseph's, Yonkers, N. Y.; Rad.—Bellevue Hospital Center.
Veterans Administration Hospital (Bronx)	New York City	Anes.—Grasslands, Valhalla, N. Y.; Derm. Syph., Ortho. Surg., Plas. Surg.—New York Hospital; Neuro.—New York Hospital, Neurological Institute, Letchworth Village, Thiells, N. Y.; Neuro. Surg.—Neurological Institute; Psych.—Jewish Board of Guardians, Lenox Hill, Manhattan State, Mount Sinai, Letchworth Village, Thiells, N. Y.; Rad.—Bellevue Medical Center, Presbyterian; Surg.—North Shore, Manhasset, N. Y., Beekman-Downtown; Thor. Surg.—Veterans Administration, Sunmount, N. Y.
St. Lawrence State Hospital	Ogdensburg, N. Y.	Psych.—Syracuse Psychopathic, Syracuse, N. Y.
High Point Hospital	Port Chester, N. Y.	Psych.—Grasslands, Valhalla, N. Y.
Hudson River State Hospital	Poughkeepsie, N. Y.	Psych.—Albany, Albany, N. Y., Psychiatric Institute, New York City, Rockland State Hospital, Orangeburg, N. Y., Letchworth Village, Thiells, N. Y., Grasslands, Valhalla, N. Y.
Creedmoor State Hospital	Queens Village, N. Y.	Psych.—Mount Sinai, Psychiatric Institute, New York City, Creedmoor Institute for Psychobiologic Research.
Genesee Hospital	Rochester, N. Y.	Ob.-Gyn.—Strong Memorial-Rochester Municipal.
Iola-Monroe County Tuberculosis Sanatorium	Rochester, N. Y.	Pul. Dis.—Strong Memorial-Rochester Municipal.
Rochester General Hospital	Rochester, N. Y.	Surg.—Park Avenue.
Rochester State Hospital	Rochester, N. Y.	Psych.—Psychiatric Institute, New York City.
St. Mary's Hospital	Rochester, N. Y.	Georgetown University Hospital, Washington, D. C.
Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.	Ped.—Genesee, Rochester General; Psych.—Frederick Feris Thompson, Canandaigua, N. Y., Rochester State Hospital; Rad.—Roswell Park Memorial Institute, Buffalo, N. Y.; Surg.—Highland.
Sea View Hospital	Staten Island, N. Y.	Thor. Surg.—St. Michael's, Newark, N. J.
Veterans Administration Hospital	Sunmount, N. Y.	Pul. Dis., Thor. Surg.—Mary Fletcher, Burlington, Vt.
Syracuse Psychopathic Hospital	Syracuse, N. Y.	Psych.—New York University Medical Center, Syracuse Memorial, Syracuse State Hospital, Craig Colony for Epileptics, Sonyea, N. Y., Rome State Hospital, Rome, N. Y., Newark State Schools.
Utica State Hospital	Utica, N. Y.	Psych.—Syracuse Psychopathic, Syracuse, N. Y., Oneida County Child Guidance Clinic at St. Luke's Hospital, Utica.
Pilgrim State Hospital	West Brentwood, N. Y.	Psych.—Neurological Institute, New York State Psychiatric Institute, New York City.
New York Hospital, Westchester Division	White Plains, N. Y.	Psych.—Montefiore, Neurological Institute, Payne Whitney Psychiatric Clinic of New York Hospital, New York City, Grasslands, Valhalla, N. Y.
Willard State Hospital	Willard, N. Y.	Psych.—Syracuse Psychopathic, Syracuse, N. Y.
Harlem Valley State Hospital	Wingdale, N. Y.	Psych.—Albany, Albany, N. Y.
North Carolina Memorial Hospital	Chapel Hill, N. C.	Surg.—State Hospitals, Butner, N. C., Raleigh, N. C.
Duke Hospital	Durham, N. C.	Veterans Administration (available for all services for male patients); Ophth., Otol.—McPherson; Ortho. Surg.—Armed Forces Institute of Pathology, Washington, D. C., Warm Springs Foundation, Warm Springs, Ga., Charlotte Memorial, Charlotte, N. C.; Ped.—Charity, New Orleans, U. S. Army Hospital, Fort Bragg, N. C., Watts; Psych.—Watts, Veterans Administration, Roanoke, Va.
McPherson Hospital	Durham, N. C.	Ophth., Otol.—North Carolina Memorial, Chapel Hill, Duke, Watts.
Veterans Administration Hospital	Durham, N. C.	Int. Med., Path., Psych., Rad., Surg.—Duke.
State Hospital	Raleigh, N. C.	Psych.—North Carolina Memorial, Chapel Hill, N. C.
North Carolina Baptist Hospital	Winston-Salem, N. C.	Int. Med.—Western North Carolina Sanatorium, Black Mountain, N. C.; Thor. Surg.—Western North Carolina Sanatorium, Black Mountain, N. C., Guilford County Sanatorium, Jamestown, N. C.
Akron General Hospital	Akron, Ohio	Ob.-Gyn.—Additional year of training, including pathology, University of Chicago Clinics, available; Surg.—Children's.
Children's Hospital	Akron, Ohio	Ped., Surg.—Akron General, City.
City Hospital	Akron, Ohio	Ob.-Gyn.—Chicago Lying-In, Chicago; Surg.—Children's.
St. Thomas Hospital	Akron, Ohio	Ob.-Gyn.—Chicago Lying-In, Chicago.
Veterans Administration Hospital	Brecksville, Ohio	Pul. Dis.—Veterans Administration, Cleveland.
Bethesda Hospital	Cincinnati	Path.—Cincinnati General.
Christ Hospital	Cincinnati	Gen'l Pract.—Children's.

Numerical and other references will be found on page 363.

AFFILIATING SERVICES — Continued

Parent Hospital	Location	Affiliating Hospitals
Cincinnati General Hospital	*Cincinnati*	*Int. Med.—May include fellowship training in cardiology;* Int. Med., Psych.—Includes one year fellowships available in psychosomatic medicine; Derm. Syph., Neuro., Ophth., Otol., Path., Rad., Urol.—Veterans Administration; Int. Med., Surg.—Daniel Drake Memorial, Dunham, Holmes, Veterans Administration; Neuro. Surg.—Christ, Good Samaritan, Veterans Administration; Surg.—Childrens.
Good Samaritan Hospital	Cincinnati	Neuro. Surg.—Cincinnati General; Ped.—St. Mary's; Surg.—Longview State.
Jewish Hospital	Cincinnati	Int. Med.—Institute for Chronically Ill, Longview State; Surg.—Memorial, New York City, Longview State.
Cleveland Clinic Hospital	Cleveland	Surg.—City Hospital.
Cleveland Receiving Hospital	Cleveland	Psych.—City Hospital.
Evangelical Deaconess Hospital	Cleveland	Ob.—Cleveland Clinic, University Hospital.
Mount Sinai Hospital	Cleveland	Med.—Sunny Acres-Cuyahoga County Tuberculosis; Rad.—University Hospitals.
St. Alexis Hospital	Cleveland	Surg.—Cleveland Clinic, City, Ingleside, East 35th Street Dispensary.
St. Luke's Hospital	Cleveland	Int. Med.—Sunny Acres-Cuyahoga County Tuberculosis, Windsor Sanitarium; Ophth.—City.
University Hospital	Cleveland	Int. Med.—Benjamin Rose; Ortho. Surg.—Elyria Memorial, Elyria, Ohio; Ped.—City; Surg.—Cleveland State.
Veterans Administration Hospital	Cleveland	Int. Med.—Veterans Administration, Brecksville, Ohio, Lakeside; Neuro. Surg.—Lakeside, City; Psych.—Lakeside; Thor. Surg.—Veterans Administration, Brecksville, Ohio.
Benjamin Franklin Hospital	Columbus, Ohio	Thor. Surg.—Mount Carmel.
Columbus State Hospital	Columbus, Ohio	Psych.—Children's Mental Health Center, Columbus Psychiatric Clinic.
Ohio Tuberculosis Hospital	*Columbus, Ohio*	Thor. Surg.—University Hospitals.
University Hospitals	Columbus, Ohio	Anes.—Children's, Ohio Tuberculosis, St. Francis; Int. Med.—Columbus Receiving, Ohio Tuberculosis, St. Francis; Ophth.—Mount Carmel; *Otol.—Children's; Rad.—Ohio Tuberculosis;* Surg., *Urol.—Children's,* St. Francis.
White Cross Hospital	Columbus, Ohio	Card. Dis.—Children's, University; Ob.-Gyn.—Florence Crittenton Home, Cleveland.
Good Samaritan Hospital	*Dayton, Ohio*	*Surg.—Good Samaritan, Cincinnati.*
Lakewood Hospital	Lakewood, Ohio	Ob.-Gyn.—City, Cleveland.
Toledo Hospital	Toledo, Ohio	Gen'l Pract.—Toledo State.
Harding Sanitarium	Worthington, Ohio	Psych.—Children's Mental Health Center, Columbus, Ohio.
Youngstown Hospital	Youngstown, Ohio	Int. Med., Surg.—Includes six months' assignment, Ohio State University Medical School, Columbus, Ohio.
Veterans Administration Hospital	Oklahoma City	Rad.—University Hospitals.
Wesley Hospital	Oklahoma City	Int. Med., Ob.-Gyn., Rad., Surg.—University Hospitals.
St. Vincent's Hospital	Portland, Ore.	Surg.—Fairview Home, Oregon State, Salem, Ore., State Penitentiary Hospital.
University of Oregon Medical Schools Hospitals and Clinics	Portland, Ore.	Anes., *Ophth., Otol., Path., Surg., Urol.—Veterans Administration;* Neuro. Surg.—Good Samaritan; Ped.—City Isolation.
Veterans Administration Hospital	Portland, Ore.	Ortho. Surg.—Shriners Hospital for Crippled Children, Philadelphia; Ortho. Surg., Otol., Path., Surg., Urol.—University of Oregon Medical School Hospitals and Clinics.
Oregon State Hospital	Salem, Ore.	Psych.—Hillcrest School for Girls, Marion County Child Guidance Clinic, Oregon State Penitentiary.
Veterans Administration Hospital	*Coatesville, Pa.*	*Psych.—Children's, Institute of Pennsylvania Hospital,* Marriage Council, Veterans Administration Mental Hygiene Clinic, Philadelphia.
Thomas M. Fitzgerald Mercy Hospital	Darby, Pa.	Rad.—Philadelphia General, Philadelphia.
Embreeville State Hospital	Embreeville, Pa.	Psych.—Hospital of the University of Pennsylvania, Philadelphia.
Sacred Heart Hospital	Norristown, Pa.	Gen'l Pract.—Norristown State.
Germantown Dispensary and Hospital	Philadelphia	Surg.—Jefferson Medical College and Hospital.
Graduate Hospital of the University of *Pennsylvania*	Philadelphia	Otol.—Children's.
Hahnemann Hospital	Philadelphia	Thor. Surg.—Credit for six months' training in cardiovascular surgery given by Board of Thoracic Surgery.
Hospital of the University of Pennsylvania	Philadelphia	Surg.—Children's.
Hospital of the *Woman's Medical College of* Pennsylvania	Philadelphia	Int. Med.—May include one year fellowship in Department of Oncology; Ped.—Philadelphia General—Northern Division.
Jeanes Hospital	Philadelphia	Rad.—Hospital of the University of Pennsylvania.
Jefferson Medical College Hospital	Philadelphia	Rad.—Memorial Hospital, New York City.
Lankenau Hospital	Philadelphia	Path.—May include assignment to the Institute for Cancer Research and Lankenau Hospital Research Institute.
Philadelphia General Hospital	*Philadelphia*	Int. Med.—May include one year of fellowship in division of Endocrinology; Ob.-Gyn.—Presbyterian.
Philadelphia Psychiatric Hospital	Philadelphia	Psych.—Hahnemann Medical College and Hospital, Temple, University of Pennsylvania Hospital.
Presbyterian Hospital	*Philadelphia*	Int. Med., *Surg.—Hospital of the University of Pennsylvania;* Urol.—Urologic Clinic.
St. Christopher's Hospital for Children	Philadelphia	Ped.—Abington, Abington, Pa., Lankenau, Philadelphia General, Temple.
Shriners Hospital for Crippled Children	Philadelphia	Ortho. Surg.—St. Christopher's.
Skin and	Philadelphia	Derm. Syph.—Temple.
Veterans	Philadelphia	Rad., Urol.—St. Christopher's; Surg.—U. S. Naval Hospital.
Veterans	Pittsburgh	Path., Urol.—Pittsburgh Medical Center; Rad.—Children's, Western Pennsylvania; Phys. Med.—D. T. Watson Home for Crippled Children, Leetsdale, Pa.
Warren State Hospital	Warren, Pa.	Psych.—Hamot, Erie, Pa.
Woodville State Hospital	Woodville, Pa.	Psych.—Western Psychiatric Institute and Clinic,. Pittsburgh, Pa.
Rhode Island Hospital	Providence, R. I.	Anes.—Boston Children's, Boston Lying-In, Boston, *Mass.;* Ped.—Children's, Boston, Charles V. Chapin, Providence Lying-In, Emma Pendleton Bradley Home, Riverside, R. I.
Veterans Administration Hospital	Providence, R. I.	Surg.—Massachusetts Memorial, Boston, Mass., Truesdale, Fall River, Mass., Framingham Union, Framingham, Mass.
Emma Pendleton Bradley Home	Riverside, R. I.	Psych.—Rhode Island, Providence, R. I.
Roper Hosp	Charleston, S. C.	Path.—Apply: Medical College, State of South Carolina.
Orangeburg	*Orangeburg, S. C.*	*Urol.—Bamberg County Memorial, Bamberg, S. C.*
St. Mary's	Knoxville, Tenn.	Surg.—East Tennessee Tuberculosis, Knoxville General, Veterans Administration Mountain Home, Johnson City, Tenn.
Baptist Memorial Hospital	Memphis, Tenn.	Neuro. Surg., Ob.-Gyn., Surg., Thor. Surg., Urol.—John Gaston.
Campbell Clinic-Hospital	Memphis, Tenn.	Ortho. Surg.—Crippled Children's, Hospital for Crippled *Adults,* John Gaston.
Gailor Psychiatric Hospital	Memphis, Tenn.	Psych.—John Gaston, Western State.
Le Bonheur Children's Hospital	Memphis, Tenn.	Ped.—John Gaston.
Oakville Memorial Sanatorium	Memphis, Tenn.	Pul. Dis.—West Tennessee Tuberculosis.
St. Joseph Hospital	Memphis, Tenn.	Ob.-Gyn., Ped.—John Gaston; Surg.—West Tennessee Tuberculosis.
Veterans Administration Hospital	Memphis, Tenn.	Int. Med.—John Gaston; Surg.—LeBonheur Children's; Urol.—Methodist.
George W. Hubbard Hospital of Meharry Medical College	Nashville, Tenn.	Ob.-Gyn.—John A. Andrew Memorial, Tuskegee Institute, Ala.; Surg.—Taborian, Mount Bayou, Miss.
St. Thomas Hospital	Nashville, Tenn.	Int. Med.—Nashville General; Ob.-Gyn.—Vanderbilt University.
Children's Medical Center	Dallas, Texas	Ped.—Hope Cottage, Parkland Memorial, Texas Scottish Rite.

Numerical and other references will be found on page 363.

AFFILIATING SERVICES — Continued

Parent Hospital	Location	Affiliating Hospitals
Timberlawn Sanitarium	Dallas, Texas	Psych.—Dallas Child Guidance Clinic, Parkland Memorial.
Veterans Administration Hospital	Dallas, Texas	Surg.—Gaston.
St. Mary's Infirmary	Galveston, Texas	Gen'l Pract.—University of Texas Medical Branch Hospitals.
University of Texas Medical Branch Hospitals	Galveston, Texas	Ob.-Gyn.—Brackenridge, Austin, Texas; Ped.—Willard Parker, New York City.
Hermann Hospital	Houston, Texas	Int. Med.—Houston Tuberculosis, Veterans Administration; Ped.—Jefferson Davis, Methodist, Texas Children's; Rad.—University of Texas M. D. Anderson Hospital for Cancer Research; Urol.—Southern Pacific, University of Texas M. D. Anderson Hospital for Cancer Research.
Jefferson Davis Hospital	Houston, Texas	Int. Med., Otol., Plas. Surg.—Veterans Administration; Ped.—Texas Children's; Surg.—Methodist, Veterans Administration.
Methodist Hospital	Houston, Texas	Neuro. Surg., Ob.-Gyn., Surg.—Jefferson Davis, University of Texas M. D. Anderson Hospital for Cancer Research, Veterans Administration.
St. Joseph's Hospital	Houston, Texas	Ob.-Gyn.—University of Texas M. D. Anderson Hospital for Cancer Research; Int. Med.—Southern Pacific.
University of Texas M. D. Anderson Hospital for Cancer Research	Houston, Texas	Ob.-Gyn.—Methodist, Hermann; Rad.—Hermann; Surg.—Robert B. Green Memorial, San Antonio, Texas; Int. Med.—Southern Pacific.
Veterans Administratio [illegible]	Houston, Texas	Int. Med., Ortho. Surg., Otol., Surg.—Jefferson Davis, Methodist.
Nan Travis Memorial	Jacksonville, Texas	Gen'l Pract.—Rusk State.
Veterans Administratio	McKinney, Texas	Ophth., Otol., Surg., Urol.—Gaston, Parkland Memorial, St. Paul, Texas Children's.
Brooke Army Medical Center	San Antonio, Texas	All Services—Brooke Army Hospital, 4th Army Medical Laboratory, Medical Field Service School.
Robert B. Green Memorial Hospital	San Antonio, Texas	Surg.—University of Texas M. D. Anderson Hospital for Cancer Research, Houston, Texas.
Scott and White Memorial Hospital	Temple, Texas	Anes., Int. Med., Ophth., Ortho. Surg., Rad.—Gulf, Colorado and Santa Fe Association Hospital.
Dr. W. H. Groves Latter-Day Saints Hospital	Salt Lake City	Thor. Surg.—Utah State Tuberculosis Sanatorium, Ogden, Utah.
Holy Cross [illegible]	Salt Lake City	Ob.-Gyn., Path., Rad.—Salt Lake County General.
St. Mark's	Salt Lake City	Surg.—University of Utah Affiliated Hospitals.
Salt Lake C	Salt Lake City	Int. Med., Surg.—Veterans Administration; Ob.-Gyn.—Thomas D. Dee Memorial, Ogden, Utah, Dr. W. H. Groves Latter-Day Saints, Holy Cross; Ped.—Holy Cross; Psych.—Provo Mental, Provo, Utah, Veterans Administration.
Bishop DeGoesbriand Hospital	Burlington, Vt	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.—Mary Fletcher.
Mary Fletcher Hospital	Burlington, Vt	Int. Med.—Sun Mountain Sanitarium; Vermont State, Waterbury, Vt.; Ob.-Gyn.—Boston Lying-In, Boston, Mass.; Path.—Krebs Memorial, St. Albans, Vt.; Rad.—Children's, Boston, Mass; Urol.—Bishop DeGoesbriand.
Blue Ridge Sanatorium	Charlottesville, Va	Pul. Dis.—University of Virginia.
University of Virginia Hospital	Charlottesville, Va	Ortho. Surg.—Alfred I. duPont Institute of the Nemours Foundation, Wilmington, Del., Western State; Psych.—Veterans Administration, Roanoke, Va.; Thor. Surg.—Piedmont Sanatorium, Burkeville, Va., Catawba Sanatorium, Catawba Sanatorium, Va., Blue Ridge Sanatorium.
Chesapeake and Ohio Hospital	Clifton Forge, Va	Surg.—Chesapeake and Ohio, Huntington, W. Va.
Lynchburg General Hospital	Lynchburg, Va	Surg.—Chesapeake and Ohio, Clifton Forge, Va.
Norfolk General Hospital	Norfolk, Va	Ob.-Gyn.—Florence Crittenton Home.
Johnston-Willis Hospital	Richmond, Va	Ob.—Brookfield Home for Girls and Instructive Visiting Nurses Association Clinic; Surg.—Pine Camp, Retreat for the Sick, Sheltering Arms.
Medical College of Virginia—Hospital Division	Richmond, Va	Int. Med.—Sheltering Arms, Veterans Administration; Path.—May include one year of training in the Department of Surgical Pathology; Surg.—Stuart Circle; Urol.—Veterans Administration.
St. Elizabeth's Hospital	Richmond, Va	Surg.—Medical College of Virginia (Hospital Division)
Eastern State Hospital	Williamsburg, Va	Psych.—Lynchburg Training School and Hospital for Mental Defectives, Mental Hygiene Clinic.
Children's Orthopedic Hospital	Seattle	Ortho. Surg.—University of Washington Child Health Center.
King County Hospital Unit No. 1 (Harborview)	Seattle	Anes., Ophth., Ped., Surg.—Children's Orthopedic; Int. Med.—Firland Sanitorium; Neuro. Surg.—Veterans Administration; Surg.—Veterans Administration, Spokane, Wash; Thor. Surg.—Firland Sanitorium.
Pinel Foundation	Seattle	Psych.—Seattle Children's Home.
U. S. Public Health Service Hospital	Seattle	Path.—Children's Orthopedic.
Veterans Administration Hospital	Seattle	Int. Med., Surg.—Children's Orthopedic, Firland Sanatorium, King County, Virginia Mason.
Virginia Mason Hospital	Seattle	Anes., Rad., Surg.—Children's Orthopedic.
St. Luke's Hospital	Spokane, Wash	Ob.-Gyn.—Booth Memorial.
Shriner's Hospital for Crippled Children	Spokane, Wash	Ortho. Surg.—St. Luke's.
Chesapeake and Ohio Hospital	Huntington, W. Va	Surg.—Chesapeake and Ohio, Clifton Forge, Va.
Milwaukee County Hospital	Milwaukee	Ob.-Gyn.—Milwaukee.
Milwaukee County Hospital for Mental Diseases	Milwaukee	Psych.—Milwaukee County Dispensary, Milwaukee County Guidance Clinic.
Milwaukee Hospital	Milwaukee	Int. Med.—Columbia; Ob.-Gyn.—Milwaukee County; Surg.—Muirdale Sanitorium, Veterans Administration.
Muirdale Sanatorium	Milwaukee	Pul. Dis., Thor. Surg.—Columbia, Milwaukee, Milwaukee Children's, Milwaukee County.
St. Mary's Hospital	Milwaukee	Ob.-Gyn.—Mount Sinai.
St. Michael Hospital	Milwaukee	Gen'l Pract.—Milwaukee County Cancer Diagnostic Center, South View.
Veterans Administration Hospital	Milwaukee (Wood)	Anes.—Milwaukee Children,'s, Milwaukee County; Ophth.—Milwaukee Children's; Path.—St. Mary's; Rad.—Milwaukee, Milwaukee Children's, University of Chicago Clinics, Chicago; Surg.—Columbia, Milwaukee Children's, Milwaukee; Urol.—Milwaukee Children's, Milwaukee County.
Kapiolani Maternity and Gynecological Hospital	Honolulu, T. H	Ob.-Gyn.—Salvation Army Girl's Home; Territorial, Kaneohe, T. H.
Leahi Hospital	Honolulu, T. H	Psych.—Bureau of Mental Hygiene Clinic, Kawailoa Girls' Home, Koolau Boys' Home, Oahu Prison.
Queen's Hospital	Honolulu, T. H	Int. Med.—Leahi.
Shriners I	Honolulu, T. H	Ortho. Surg.—Hale Mohalu Orthopedic Service, Leahi, Queen's.
Veterans	San Juan, P. R	Int. Med., Surg.—San Juan City.

NUMERICAL AND OTHER REFERENCES

1. Appointments available to women applicants.
2. Appointments available to women applicants only.
3. Appointments available to graduates of foreign medical schools. Details regarding requirements for appointment can be secured from the hospitals concerned.

Application for the following programs should be made as indicated:

Residencies in U. S. Army Hospitals: available only to U. S. Regular Army Medical Corps officers and eligible applicants for U. S. Regular Army Medical Corps. Apply: Office of Surgeon General, Department of the Army, Washington 25, D. C.

Residency in Internal Medicine, Northwestern University Medical Center. Apply: Director, Graduate Division, Northwestern Medical School, 303 E. Chicago Ave., Chicago 11.

Residencies in [illegible] Syphilology, General Practice, Intern[illegible] Orthopedic Surgery, Otolaryngology, [illegible] and Surgery, at Colorado General and Denver General Hospitals, Denver; Physical Medicine, Colorado General; Urology, Denver General. Apply: Office of Graduate Medical Education, University of Colorado Medical Center, Denver.

Residency in Pathology, Roper Hospital, Charleston, S. C. Apply: Medical College of South Carolina, 16 Lucas St., Charleston 16, S. C.

HOSPITALS APPROVED FOR RESIDENCY TRAINING

Number of Hospitals, 1,201; Number of Programs, 5,032

Name of Hospital	Location	Approved Residencies
Birmingham Baptist Hospital ★	Birmingham, Ala.	Path.
Carraway Methodist Hospital ★	Birmingham, Ala.	Int. Med., Obst., Surg., Urol.
Children's Hospital	Birmingham, Ala.	Ped.
University Hospital and Hillman Clinic ★	Birmingham, Ala.	Anes., Derm. Syph., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Birmingham, Ala.	Int. Med., Ortho. Surg., Path., Rad., Surg., Urol.
Lloyd Noland Hospital ★	Fairfield, Ala.	Anes., Derm. Syph., Int. Med., Obst., Ortho. Surg., Path., Ped., Surg., Urol.
City Hospital ★	Mobile, Ala.	Int. Med., Ortho. Surg., Path., Ped., Surg.
Veterans Admin. Hospital	Tuskegee, Ala.	Int. Med., Ophth., Psych., Rad., Surg.
Good Samaritan Hospital ★	Phoenix, Ariz.	Gen'l Pract., Ob.-Gyn., Surg.
Maricopa County General Hospital ★	Phoenix, Ariz.	Gen'l Pract., Ob.-Gyn., Path., Ped., Surg.
St. Joseph's Hospital ★	Phoenix, Ariz.	Ob.-Gyn., Surg.
St. Mary's Hospital and Sanatorium ★	Tucson, Ariz.	Gen'l Pract., Int. Med., Surg.
Tucson Medical Center ★	Tucson, Ariz.	Int. Med., Surg.
Arkansas Baptist Hospital ★	Little Rock, Ark.	Int. Med., Ophth., Surg.
Arkansas Children's Home and Hospital	Little Rock, Ark.	Ortho. Surg.
Arkansas State Hospital	Little Rock, Ark.	Psych.
St. Vincent Infirmary ★	*Little Rock, Ark.*	*Anes.*
University Hospital ★	Little Rock, Ark.	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Veterans Admin. Hospital ★	Little Rock, Ark.	Int. Med., Otol., Surg.
Veterans Admin. Hospital	North Little Rock, Ark.	Psych.
St. Michael's Hospital	Texarkana, Ark.	Gen'l Pract.
Agnews State Hospital	Agnew, Calif.	Psych.
General Hospital of Riverside County ★	Arlington, Calif.	Gen'l Pract., Int. Med., Surg.
Kern General Hospital ★	Bakersfield, Calif.	Gen'l Pract., Int. Med., Path., Ped., Rad., Surg.
Herrick Memorial Hospital ★	Berkeley, Calif.	Int. Med., Ob.-Gyn., Path., Psych., Rad., Surg.
St. Joseph Hospital	Burbank, Calif.	Path.
Camarillo State Hospital	Camarillo, Calif.	Psych.
Compton Sanitarium	Compton, Calif.	Psych.
City of Hope National Medical Center	Duarte, Calif.	Mal. Dis., Path., Pul. Dis., Thor. Surg.
San Joaquin General Hospital ★	French Camp, Calif.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
General Hospital of Fresno County ★	Fresno, Calif.	Int. Med., Ophth., Ped., Rad., Surg.
Glendale Sanitarium and Hospital ★	Glendale, Calif.	Int. Med., Ob.-Gyn., Path., Surg.
Napa State Hospital	Imola, Calif.	Psych.
Arroyo-Del Valle Sanatorium	Livermore, Calif.	Pul. Dis.
Loma Linda Sanitarium and Hospital ★	Loma Linda, Calif.	Path.
Seaside Memorial Hospital ★	Long Beach, Calif.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Veterans Admin. Hospital ★	Long Beach, Calif.	Allergy, Card. Dis., Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ophth., Ortho. Surg., Otol., Path., Psych., Pul. Dis., Rad., Surg., Urol.
Barlow Sanatorium	Los Angeles	Pul. Dis.
California Babies' and Children's Hospital	Los Angeles	Ped.
California Hospital ★	Los Angeles	Int. Med., Ob.-Gyn., Path., Surg.
Cedars of Lebanon Hospital ★	Los Angeles	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Children's Hospital ★	Los Angeles	Ortho. Surg., Path., Ped.
Hospital of the Good Samaritan ★	Los Angeles	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Los Angeles County General Hospital ★	Los Angeles	Anes., Derm. Syph., Gen'l Pract., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Los Angeles Eye and Ear Hospital	Los Angeles	Ophth., Otol.
Methodist Hospital of Southern California ★	Los Angeles	Gen'l Pract.
Orthopedic Hospital	Los Angeles	Ortho. Surg.
Presbyterian Hospital-Olmsted Memorial ★	Los Angeles	Int. Med., Mal. Dis., Ob.-Gyn., Rad., Urol.
Queen of Angels Hospital ★	Los Angeles	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
St. Vincent's Hospital ★	Los Angeles	Int. Med., Path., Surg.
Santa Fe Coast Lines Hospital ★	Los Angeles	Surg.
Shriners Hospital for Crippled Children	Los Angeles	Ortho. Surg.
University of California Medical Center	*Los Angeles*	Int. Med., Ped.
Veterans Admin. Hospital ★	Los Angeles	Anes., Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ophth., Ortho. Surg., Otol., Path., Plas. Surg., Psych., Rad., Surg., Thor. Surg., Urol.
White Memorial Hospital ★	Los Angeles	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Proct., Rad., Surg., Urol.
Contra Costa County Hospital	Martinez, Calif.	Gen'l Pract.
Bret Harte Sanatorium	Murphys, Calif.	Pul. Dis.
Metropolitan State Hospital	Norwalk, Calif.	Psych.
Children's Hospital of the East Bay	Oakland, Calif.	Ortho. Surg., Ped.
Highland-Alameda County Hospital ★	Oakland, Calif.	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Kaiser Foundation Hospital ★	Oakland, Calif.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Surg.
Peralta Hospital	Oakland, Calif.	Surg.
Samuel Merritt Hospital	Oakland, Calif.	Anes., Ortho. Surg., Surg.
U. S. Naval Hospital ★	Oakland, Calif.	Anes., Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Palo Alto, Calif.	Psych.
Collis P. and Howard Huntington Memorial Hosp. ★	Pasadena, Calif.	Int. Med., Mal. Dis., Neuro. Surg., Ob.-Gyn., Path., Rad., Surg.
Patton State Hospital	Patton, Calif.	Psych.
Sequoia Hospital	Redwood City, Calif.	Gen'l Pract.
Sacramento County Hospital ★	*Sacramento, Calif.*	*Gen'l Pract., Path.*
Sutter General Hospital	Sacramento, Calif.	Rad.
Monterey County Hospital	Salinas, Calif	Gen'l Pract.
San Bernardino County Charity Hospital ★	San Bernardino, Calif.	Int. Med., Path., Surg.
Mercy Hospital ★	San Diego, Calif.	Int. Med., Ob.-Gyn., Path., Surg.
San Diego County General Hospital ★	San Diego, Calif.	Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Pul. Dis., Rad., Surg., Urol.
U. S. Naval Hospital ★	San Diego, Calif.	Allergy, Derm. Syph., Gen'l Pract., Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Rad., Surg., Urol.
Children's Hospital ★	San Francisco	Con. Dis., Int. Med., Ob.-Gyn., Otol., Ortho. Surg., Ped., Rad., Surg.
Franklin Hospital ★	San Francisco	Int. Med., Ortho. Surg., Path., Plas. Surg., Urol.
French Hospital ★	San Francisco	Int. Med., Path., Surg.
Green's Eye Hospital	San Francisco	Ophth.
Langley Porter Clinic-Hospital	San Francisco	Psych.
Letterman Army Hospital ★	San Francisco	Anes., Card. Dis., Gastro., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Mary's Help Hospital ★	San Francisco	Int. Med., Ob.-Gyn., Surg.
Mount Zion Hospital ★	San Francisco	Anes., Int. Med., Path., Ped., Psych., Rad., Surg.
St. Francis Memorial Hospital	San Francisco	Anes., Gen'l Pract., Ob.-Gyn., Path., Plas. Surg., Rad.
St. Joseph's Hospital ★	San Francisco	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Surg.
St. Luke's Hospital ★	San Francisco	Int. Med., Ob.-Gyn., Path., Surg.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
St. Mary's Hospital ★	San Francisco	Int. Med., Ob.-Gyn., Ortho. Surg., Ped., Rad., Surg.
San Francisco Hospital ★		
Stanford University Service	San Francisco	Int. Med., Ob.-Gyn., Otol., Ortho. Surg., Path., Ped., Pul. Dis., Rad., Surg., Urol.
University of California Service	San Francisco	Int. Med., Ob.-Gyn., Otol., Ortho. Surg., Path., Ped., Pul. Dis., Rad., Surg., Urol.
Shriners Hospital for Crippled Children	San Francisco	Ortho. Surg.
Southern Pacific General Hospital ★	San Francisco	Int. Med., Surg., Urol.
Stanford University Hospital ★	San Francisco	Anes., Derm. Syph., Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
U. S. Public Health Service Hospital ★	San Francisco	Int. Med., Surg.
University of California Hospital ★	San Francisco	Anes., Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Urol.
Veterans Admin. Hospital	San Francisco	Int. Med., Neur., Ophth., Otol., Ortho. Surg., Path., Rad., Surg., Urol.
O'Connor Hospital	San Jose, Calif.	Path.
Santa Clara County Hospital ★	San Jose, Calif.	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Pul. Dis., Rad., Surg., Urol.
Fairmount Hospital of Alameda County	San Leandro, Calif.	Pul. Dis.
Community Hospital of San Mateo County	San Mateo, Calif.	Anes., Gen'l Pract., Int. Med., Surg.
Santa Barbara Cottage Hospital ★	Santa Barbara, Calif.	Int. Med., Path., Surg.
Santa Barbara General Hospital	Santa Barbara, Calif.	Surg.
St. John's Hospital ★	Santa Monica, Calif.	Ob.-Gyn., Path., Ped., Rad., Surg.
Sonoma County Hospital	Santa Rosa, Calif.	Gen'l Pract., Ortho. Surg.
Pacific State Hospital	Spadra, Calif.	Psych.
Tulare-Kings Counties Joint Tuberculosis Hospital	Springville, Calif.	Pul. Dis.
Harbor General Hospital ★	Torrance, Calif.	Int. Med., Ob.-Gyn., Ophth., Otol., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Tulare County General Hospital	Tulare, Calif.	Gen'l Pract.
Glockner-Penrose Hospital ★	Colorado Springs, Colo.	Gen'l Pract., Path., Rad.
St. Francis Hospital	Colorado Springs, Colo.	Gen'l Pract., Rad.
Children's Hospital	Denver	Ortho. Surg., Path., Ped., Surg.
Fitzsimons Army Hospital ★	Denver	Anes., Card. Dis., Int. Med., Neur., Ob.-Gyn., Ortho. Surg., Path., Ped., Phys. Med., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
General Rose Memorial Hospital ★	Denver	Path., Rad.
Mercy Hospital ★	Denver	Int. Med., Path., Surg.
National Jewish Hospital	Denver	Pul. Dis., Thor. Surg.
Presbyterian Hospital ★	Denver	Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Anthony Hospital ★	Denver	Int. Med., Surg.
St. Joseph's Hospital ★	Denver	Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Luke's Hospital ★	Denver	Int. Med., Path., Rad., Surg.
University of Colorado Medical Center		
Colorado General Hospital ★	Denver	Anes., Derm. Syph., Gen'l Pract., Int. Med., Neur., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Rad., Surg., Urol.
Colorado Psychopathic Hospital	Denver	Psych.
Denver General Hospital ★	Denver	Anes., Gen'l Pract., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Urol.
Veterans Admin. Hospital	Denver	Int. Med , Neur., Ortho. Surg., Path., Phys. Med., Psych., Rad., Surg.
Colorado State Hospital	Pueblo, Colo.	Path., Psych., Surg.
Corwin Hospital	Pueblo, Colo.	Surg.
Bridgeport Hospital ★	Bridgeport, Conn.	Anes., Int. Med., Obst., Path., Rad., Surg.
St. Vincent's Hospital ★	Bridgeport, Conn.	Int. Med., Obst., Surg.
Danbury Hospital ★	Danbury, Conn.	Path.
Greenwich Hospital ★	Greenwich, Conn.	Gen'l Pract., Int. Med., Path., Surg.
Hartford Hospital ★	Hartford, Conn.	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg.
Hartford Municipal Hospital and Health Center ★	Hartford, Conn.	Int. Med., Surg.
Institute of Living	Hartford, Conn.	Psych.
St. Francis Hospital ★	Hartford, Conn.	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Path., Ped., Surg.
Meriden Hospital ★	Meriden, Conn.	Surg.
Connecticut State Hospital	Middletown, Conn.	Psych.
Middlesex Hospital ★	Middletown, Conn.	Path.
New Britain General Hospital ★	New Britain, Conn.	Int. Med., Ob.-Gyn., Path., Surg.
Silver Hill Foundation	New Canaan, Conn.	Psych.
Grace-New Haven Community Hospital ★	New Haven, Conn.	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Rad., Sur., Thor. Surg., Urol.
Hospital of St. Raphael ★	New Haven, Conn.	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Cedarcrest Hospital	Newington, Conn.	Pul. Dis., Thor. Surg.
Newington Home and Hospital for Crippled Children	Newington, Conn.	Ortho. Surg.
Veterans Admin. Hospital	Newington, Conn.	Path., Rad., Surg.
Lawrence and Memorial Associated Hospitals ★	New London, Conn.	Int. Med., Ob.-Gyn., Surg.
Fairfield State Hospital	Newtown, Conn.	Psych.
Norwalk Hospital ★	Norwalk, Conn.	Int. Med., Obst., Path., Surg.
Norwich State Hospital	Norwich, Conn.	Psych.
Norwich State Tuberculosis Sanatorium	Norwich, Conn.	Pul. Dis., Thor. Surg.
State of Connecticut Veterans' Home and Hospital	Rocky Hill, Conn.	Phys. Med.
Laurel Heights State Tuberculosis Sanatorium	Shelton, Conn.	Pul. Dis.
Stamford Hospital ★	Stamford, Conn.	Path.
Charlotte Hungerford Hospital	Torrington, Conn.	Gen'l Pract.
St. Mary's Hospital ★	Waterbury, Conn.	Int. Med., Path., Rad., Surg.
Waterbury Hospital ★	Waterbury, Conn.	Int. Med., Path., Ped., Rad., Surg., Urol.
Veterans Admin. Hospital	West Haven, Conn.	Int. Med., Path., Psych., Rad., Surg., Urol.
Delaware State Hospital	Farnhurst, Del.	Psych.
Alfred I. duPont Institute of Nemours Foundation	Wilmington, Del.	Ortho. Surg.
Delaware Hospital ★	Wilmington, Del.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Memorial Hospital ★	Wilmington, Del.	Int. Med., Path., Surg.
Wilmington General Hospital ★	Wilmington, Del.	Gen'l Pract., Int. Med., Path.
Armed Forces Institute of Pathology	Washington, D. C.	Path.
Army Medical Center ★	Washington, D. C.	Allergy, Anes., Card. Dis., Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Rad., Surg., Thor. Surg., Urol.
Central Dispensary and Emergency Hospital ★	Washington, D. C.	Int. Med., Path., Rad., Surg.
Children's Hospital	Washington, D. C.	Path., Ped.
Columbia Hospital for Women and Lying-In Asylum	Washington, D. C.	Ob.-Gyn.
District of Columbia General Hospital ★	Washington, D. C.	Anes., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Pul. Dis., Rad., Surg., Urol.
Doctors Hospital ★	Washington, D. C.	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Eastern Dispensary and Casualty Hospital	Washington, D. C.	Gen'l Pract.
Episcopal Eye, Ear, and Throat Hospital	Washington, D. C.	Ophth., Otol.
Freedmen's Hospital ★	Washington, D. C.	Derm. Syph., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Ped., Psych., Pul. Dis., Rad., Surg., Urol.
Garfield Memorial Hospital ★	Washington, D. C.	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Georgetown University Hospital ★	Washington, D. C.	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Path., Ped., Psych., Rad., Surg.
George Washington University Hospital ★	Washington, D. C.	Anes., Card. Dis., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Path., Phys. Med., Psych., Rad., Surg., Thor. Surg.
Providence Hospital ★	Washington, D. C.	Int. Med., Ob.-Gyn., Path., Ped., Surg.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
St. Elizabeth's Hospital ★	Washington, D. C.	Neur., Psych.
Sibley Memorial Hospital ★	Washington, D. C.	Ob.-Gyn., Path., Surg.
Tuberculosis Sanatorium (Glendale, Md.)	Washington, D. C.	Pul. Dis.
Veterans Admin. Hospital	Washington, D. C.	Int. Med., Neur., Path., Rad., Surg., Urol.
Veterans Admin. Hospital	Coral Gables, Fla.	Int. Med., Path., Surg.
Halifax District Hospital	Daytona Beach, Fla.	Gen'l Pract.
Duval Medical Center ★	Jacksonville, Fla.	Int. Med., Ob.-Gyn., Path., Ped., Psych., Rad., Surg., Urol.
Hope Haven Hospital	Jacksonville, Fla.	Ortho. Surg.
Riverside Hospital	Jacksonville, Fla.	Int. Med., Surg.
St. Luke's Hospital ★	*Jacksonville, Fla.*	Gen'l Pract., Int. Med., Ob.-Gyn., Rad., Surg.
St. Vincent's Hospital ★	Jacksonville, Fla.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Surg., Urol.
Jackson Memorial Hospital ★	Miami, Fla.	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Mount Sinai Hospital ★	Miami Beach, Fla.	Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Francis Hospital ★	Miami Beach, Fla.	Int. Med., Path., Surg.
Orange Memorial Hospital ★	Orlando, Fla.	Int. Med., Ob.-Gyn., Surg., Urol.
Baptist Hospital	Pensacola, Fla.	Gen'l Pract.
Sacred Heart Hospital ★	Pensacola, Fla.	Gen'l Pract.
American Legion Hospital for Crippled Children	St. Petersburg, Fla.	Ortho. Surg.
Mound Park Hospital ★	St. Petersburg, Fla.	Int. Med., Ob.-Gyn., Surg.
Tampa Municipal Hospital ★	Tampa, Fla.	Int. Med., Ob.-Gyn., Otol., Surg.
Crawford W. Long Memorial Hospital ★	Atlanta, Ga.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Georgia Baptist Hospital ★	Atlanta, Ga.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Grady Memorial Hospital ★	Atlanta, Ga.	Gen'l Pract., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Urol.
Henrietta Egleston Hospital for Children	Atlanta, Ga.	Ped.
Piedmont Hospital ★	Atlanta, Ga.	Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Joseph's Infirmary ★	Atlanta, Ga.	Ob.-Gyn., Surg.
Veterans Admin. Hospital ★	Atlanta, Ga.	*Anes., Int. Med., Ophth., Path., Rad., Surg., Urol.*
University Hospital ★	Augusta, Ga.	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Thor. Surg., Urol.
Veterans Admin. Hospital	Augusta, Ga.	Int. Med., Psych., Rad., Surg.
Columbus City Hospital ★	Columbus, Ga.	Gen'l Pract.
Scottish Rite Hospital for Crippled Children	Decatur, Ga.	Ortho. Surg.
Emory University Hospital ★	Emory University, Ga.	Int. Med., Neuro. Surg., Ortho. Surg., Path., Rad., Surg.
Macon Hospital ★	Macon, Ga.	Gen'l Pract.
Georgia Warm Springs Foundation	Warm Springs, Ga.	Phys. Med.
St. Joseph's Hospital	Alton, Ill.	Gen'l Pract.
U. S. Air Force Hospital	*Belleville (Scott Air Force Base)*, Ill.	Int. Med., Surg.
MacNeal Memorial Hospital ★	Berwyn, Ill.	Gen'l Pract., Surg.
Alexian Brothers Hospital ★	Chicago	Int. Med., Ortho. Surg., Path.
American Hospital ★	Chicago	Anes., Path., Surg.
Augustana Hospital ★	Chicago	Int. Med., Obst., Path., Rad., Surg.
Chicago Eye, Ear, Nose and Throat Hospital	Chicago	Ophth.
Chicago Maternity Center	Chicago	Obst.
Chicago State Hospital	Chicago	Psych.
Chicago State Tuberculosis Sanitarium	Chicago	Thor. Surg.
Chicago Wesley Memorial Hospital ★	Chicago	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
Children's Memorial Hospital	Chicago	Ortho. Surg., Path., Ped., Surg., Thor. Surg.
City of Chicago Municipal Tuberculosis Sanatorium	Chicago	Pul. Dis., Thor. Surg.
Columbus Hospital ★	Chicago	Int. Med.
Cook County Hospital ★	Chicago	Con. Dis., Derm. Syph., Gastro., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Urol.
Englewood Hospital ★	Chicago	Int. Med., Obst., Path., Rad., Surg.
Frank Cuneo Memorial Hospital	*Chicago*	*Ob.-Gyn.*
Grant Hospital ★	Chicago	Anes., Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Henrotin Hospital ★	Chicago	Int. Med., Obst., Surg.
Hospital of St. Anthony de Padua ★	Chicago	Obst., Surg.
Illinois Central Hospital ★	Chicago	Int. Med., Rad., Surg.
Illinois Eye and Ear Infirmary	Chicago	Ophth., Otol.
Illinois Masonic Hospital ★	Chicago	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg.
Lewis Memorial Maternity Hospital	Chicago	Ob.-Gyn.
Loretto Hospital ★	Chicago	Int. Med., Obst., Psych.
Lutheran Deaconess Home and Hospital ★	Chicago	Int. Med., Obst., Surg.
Mercy Hospital ★	Chicago	Int. Med., Neuro. Surg., Ob.-Gyn., Path., Ped., Psych., Rad., Surg., Urol.
Michael Reese Hospital ★	Chicago	Anes., Card. Dis., Derm. Syph., Gastro., Int. Med., Mal. Dis., Ob.-Gyn. Ophth., Ortho. Surg., Path., Ped., *Psych.*, Rad., Surg., Urol.
Mount Sinai Hospital ★	Chicago	Anes., Int. Med., Ob.-Gyn., Path., Ped., Psych., Rad., Surg., Urol.
Muncipal Contagious Disease Hospital	Chicago	Con. Dis.
Northwestern University Medical Center	Chicago	Allergy, Derm. Syph., Neur., Neuro. Surg., Phys. Med., Psych.
Norwegian-American Hospital ★	Chicago	Int. Med., Path., Surg.
Passavant Memorial Hospital ★	Chicago	Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Rad., Surg.
Presbyterian Hospital ★	Chicago	Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Path., Ped., Rad., Surg., Urol.
Provident Hospital ★	Chicago	Int. Med., Ob.-Gyn., Ophth., Ped., Surg.
Ravenswood Hospital ★	Chicago	Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Anne's Hospital ★	*Chicago*	*Ob.-Gyn., Rad.*, Surg.
St. Bernard's Hospital ★	Chicago	Rad.
St. Elizabeth Hospital ★	Chicago	Ob.-Gyn., Ortho. Surg.
St. Joseph Hospital ★	Chicago	Int. Med., Ob.-Gyn., Path., Ped., Surg.
St. Luke's *Hospital* ★	*Chicago*	*Anes., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg.*, Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
St. Mary of Nazareth Hospital ★	Chicago	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Surg.
Shriners Hospital for Crippled Children	Chicago	Ortho. Surg.
South Shore Hospital ★	Chicago	Gen'l Pract.
Swedish Covenant Hospital ★	Chicago	Obst.
University of Chicago Clinics ★	Chicago	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., *Ob.-Gyn., Ophth.*, Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Urol.
University of Illinois Neuropsychiatric Institute	Chicago	Neur., Neuro. Surg., Psych.
University of Illinois Research and Educational Hospitals ★	Chicago	Allergy, Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
Veterans Admin. Research Hospital	Chicago	Allergy, Int. Med., Neuro. Surg., Ophth., Otol., Path., Phys. Med., Rad., Surg., Thor. Surg.
Veterans Admin. (West Side) Hospital	Chicago	Int. Med., Psych., Rad., Surg.
Women and Children's Hospital ★	Chicago	*Int. Med., Ob.-Gyn., Surg.*
Woodlawn Hospital ★	Chicago	Ophth., Surg.
Decatur and Macon County Hospital ★	Decatur, Ill.	Gen'l Pract.
Dixon State School	Dixon, Ill.	Psych.
Veterans Admin. Hospital	Downey, Ill.	Psych.
Elgin State Hospital	Elgin, Ill.	Psych.
Evanston Hospital ★	Evanston, Ill.	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
St. Francis Hospital ★	Evanston, Ill.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
Little Company of Mary Hospital ★	Evergreen Park, Ill.	Int. Med., Ob.-Gyn., Ped., Rad., Surg.
U. S. Naval Hospital ★	Great Lakes, Ill.	Int. Med , Ob.-Gyn., Surg.
Veterans Admin. Hospital	Hines, Ill.	Anes., Card. Dis., Derm. Syph., Int. Med., Mal. Dis., Neur., Neuro. Surg., Ophth., Ortho. Surg., Otol., Path., Plas. Surg., Psych., Rad., Surg., Thor. Surg., Urol.
Jacksonville State Hospital	Jacksonville, Ill.	Psych.
St. Joseph's Hospital	Joliet, Ill.	Anes.
West Suburban Hospital ★	Oak Park, Ill.	Int. Med., Ob.-Gyn., Ortho. Surg., Ped., Surg.
Methodist Hospital of Central Illinois ★	Peoria, Ill.	Gen'l Pract., Obst., Path., Surg.
Peoria Municipal Tuberculosis Sanatarium	Peoria, Ill.	Pul. Dis.
St. Francis Hospital ★	Peoria, Ill.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg.
U. S. Air Force Hospital	Rantoul, Ill.	Surg.
Rockford Memorial Hospital ★	Rockford, Ill.	Path.
St. Anthony's Hospital ★	Rockford, Ill.	Ob.-Gyn., Path., Surg.
Swedish-American Hospital ★	Rockford,Ill.	Gen. Pract., Rad.
Lake County Tuberculosis Sanatorium	Waukegan, Ill.	Pul. Dis.
North Shore Health Resort	Winnetka, Ill.	Psych.
St. Francis Hospital	Beach Grove, Ind.	Gen'l Pract.
Clinic Hospital	Bluffton, Ind.	Int. Med., Rad., Surg.
St Joseph's Hospital ★	Fort Wayne, Ind.	Path., Rad.
Methodist Hospital ★	Gary, Ind.	Gen'l Pract., Path.
St. Margaret Hospital ★	Hammond, Ind.	Gen'l Pract., Rad.
Central State Hospital	Indianapolis	Psych.
Indianapolis General Hospital ★	Indianapolis	Anes., Card. Dis., Derm. Syph., Int. Med., Neur., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Pul. Dis., Rad., Surg., Urol.
Indiana University Medical Center ★	Indianapolis	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
Methodist Hospital ★	Indianapolis	Gen'l Pract., Int. Med., Neur., Obst., Ortho. Surg., Path., Rad., Surg., Urol.
Norways Foundation Hospital	Indianapolis	Psych.
St. Vincent's Hospital ★	Indianapolis	Int. Med., Ob.-Gyn., Ortho., Path., Ped., Surg.
Sunnyside Sanatorium	Indianapolis	Pul. Dis.
Veterans Admin. Hospital	Indianapolis	Int. Med., Ortho. Surg., Path., Psych., Rad., Surg.
St. Elizabeth Hospital ★	Lafayette, Ind.	Gen'l Pract., Int. Med , Ob.-Gyn., Path., Rad., Surg.
Logansport State Hospital	Logansport, Ind.	Psych.
Ball Memorial Hospital ★	Muncie, Ind.	Path., Surg.
Healthwin Hospital	South Bend, Ind.	Pul. Dis.
Memorial Hospital ★	South Bend, Ind.	Anes., Gen'l Pract.
South Bend Medical Foundation	South Bend, Ind.	Path.
Dr. Norman M. Beatty Memorial Hospital	Westville, Ind.	Psych.
St. Luke's Methodist Hospital ★	Cedar Rapids, Iowa	Gen'l Pract
Mental Health Institute	Cherokee, Iowa	Psych.
Broadlawns Polk County Hospital ★	Des Moines, Iowa	Gen'l Pract., Surg.
Iowa Methodist Hospital ★	Des Moines, Iowa	Int. Med., Ortho. Surg., Path., Ped., Rad., Surg.
Mercy Hospital ★	Des Moines, Iowa	Path.
Veterans Admin. Hospital	Des Moines, Iowa	Anes., Int. Med., Ortho. Surg., Path., Rad., Surg., Urol.
Mental Health Institute	Independence, Iowa	Psych.
Iowa State Psychopathic Hospital	Iowa City	Psych.
Mercy Hospital ★	Iowa City	Ortho. Surg., Surg.
University Hospitals ★	Iowa City	Anes., Derm. Syph., Gen'l Pract., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth , Otol., Ortho. Surg. Path., Ped., Rad., Surg., Urol.
Veterans Admin. Hospital	Iowa City	Anes., Int. Med., Path., Rad., Surg.
Halstead Hospital	Halstead, Kan.	Psych.
St. Margaret Hospital ★	Kansas City, Kan.	Surg.
University of Kansas Medical Center ★	Kansas City, Kan.	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Plas. Surg., Psych., Rad., Surg., Urol.
C. F. Menninger Memorial Hospital	Topeka, Kan.	Psych.
Topeka State Hospital	Topeka, Kan.	Psych.
Veterans Admin. Hospital	Topeka, Kan.	Int. Med., Neur., Path., Psych.
Veterans Admin. Hospital	Wadsworth, Kan.	Int. Med., Ophth., Otol., Ortho. Surg., Path., Phys. Med., Rad., Surg., Urol.
St. Francis Hospital ★	Wichita, Kan.	Gen'l Pract., Int. Med., Ob-Gyn., Ortho. Surg., Path., Rad., Surg.
Veterans Admin. Hospital	Wichita, Kan.	Int. Med., Surg.
Wesley Hospital ★	Wichita, Kan.	Gen'l Pract., Int. Med., Ob-Gyn., Path., Rad., Surg.
U. S. Army Hospital	Fort Campbell, Ky.	Surg.
U. S. Army Hospital	Fort Knox, Ky.	Surg.
Central State Hospital	Lakeland, Ky.	Psych.
Good Samaritan Hospital ★	Lexington, Ky.	Int. Med., Ortho. Surg., Surg.
St. Joseph Hospital ★	Lexington, Ky.	Int. Med., Ob.-Gyn., Ortho. Surg., Surg., Urol.
U. S. Public Health Service Hospital	Lexington, Ky.	Psych.
Veterans Admin. Hospital	Lexington, Ky.	Psych.
Children's Hospital	Louisville, Ky.	Path., Ped.
Kosair Crippled Children's Hospital	Louisville, Ky.	Ortho. Surg.
Louisville General Hospital ★	Louisville, Ky.	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Norton Memorial Infirmary ★	Louisville, Ky.	Psych., Surg.
St. Anthony's Hospital ★	Louisville, Ky.	Gen'l Pract.
St. Joseph Infirmary ★	Louisville, Ky.	Int. Med., Ob.-Gyn., Ped., Rad., Surg.
Veterans Admin. Hospital	Louisville, Ky.	Int. Med., Neur., Ophth., Otol., Ortho. Surg., Path., Psych., Rad., Surg.
Baton Rouge General Hospital ★	Baton Rouge, La.	Gen'l Pract., Path.
Lafayette Charity Hospital	Lafayette, La.	Gen'l Pract., Surg.
St. Patrick's Hospital	Lake Charles, La.	Gen'l Pract.
Charity Hospital of Louisiana ★	New Orleans	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Pul. Dis., Rad., Surg., Urol.
DePaul Hospital	New Orleans	Psych.
Eye, Ear, Nose and Throat Hospital	New Orleans	Ophth., Otol.
Hotel Dieu, Sisters Hospital ★	New Orleans	Ob.-Gyn., Path., Ped., Surg.
Ochsner Foundation Hospital	New Orleans	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Ortho. Surg., Proct., Psych., Rad., Surg., Urol.
Southern Baptist Hospital ★	New Orleans	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Touro Infirmary ★	New Orleans	Gastro., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Rad., Surg.
U. S. Public Health Service Hospital ★	New Orleans	Int. Med., Ophth., Path., Rad., Surg.
Veterans Admin. Hospital	New Orleans	Derm. Syph., Int. Med., Ophth., Ortho. Surg., Path., Psych., Rad., Surg., Urol
Huey P. Long Charity Hospital	Pineville, La.	Gen'l Pract.
Confederate Memorial Hospital ★	Shreveport, La.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Shriners Hospital for Crippled Children	Shreveport, La.	Ortho. Surg.
Eastern Maine General Hospital ★	Bangor, Maine	Anes., Path., Rad.
Central Maine Sanatorium	Fairfield, Maine	Pul. Dis.
Central Maine General Hospital ★	Lewiston, Maine	Anes., Int. Med., Path., Ped., Rad., Surg.
Maine General Hospital ★	Portland, Maine	Anes., Int. Med., Path., Rad., Surg.
Baltimore City Hospitals ★	Baltimore	Int. Med., Neur., Ob.-Gyn., Ortho. Surg., Path., Ped., Pul. Dis., Rad., Surg.
Baltimore Eye, Ear and Throat Charity Hospital	Baltimore	Ophth., Otol.
Bon Secours Hospital ★	Baltimore	Gen'l Pract., Ob.-Gyn., Surg.
Children's Hospital School	Baltimore	Ortho. Surg.

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Name of Hospital	Location	Approved Residencies
Church Home and Hospital ★	Baltimore	Int. Med., Obst., Surg.
Franklin Square Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Surg.
Hospital for Women ★	Baltimore	Int. Med., Ob.-Gyn., Path.
James Lawrence Kernan Hospital for Crippled Children	Baltimore	Ortho. Surg.
Johns Hopkins Hospital ★	Baltimore	Int Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
Lutheran Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Path., Surg.
Maryland General Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Path., Surg.
Mercy Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Otol., Path., Ped., Rad., Surg.
Provident Hospital and Free Dispensary ★	Baltimore	Int. Med., Obst., Surg.
St. Agnes Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Surg.
St. Joseph's Hospital ★	Baltimore	Ob.-Gyn.
Seton Institute	Baltimore	Psych.
Sinai Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
South Baltimore General Hospital ★	Baltimore	Int. Med., Obst., Surg.
Union Memorial Hospital ★	Baltimore	Int. Med., Obst., Path., Ped., Surg.
U. S. Public Health Service Hospital ★	Baltimore	Int. Med., Ophth., Path., Rad., Surg.
University Hospital ★	Baltimore	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Path., Ped., Psych., Rad., Surg., Thor. Surg., Urol.
National Institutes of Health—Clinical Center	Bethesda, Md.	Int. Med., Neuro., Path., Psych., Rad.
Suburban Hospital ★	Bethesda, Md.	Gen'l Pract.
U. S. Naval Hospital ★	Bethesda, Md.	Anes., Card. Dis., Int. Med., Neur., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Spring Grove State Hospital	Catonsville, Md.	Psych.
Prince George's General Hospital ★	Cheverly, Md.	Int. Med., Ob.-Gyn., Path., Surg.
Crownsville State Hospital	Crownsville, Md.	Psych.
Veterans Admin. Hospital	Fort Howard, Md.	Derm. Syph., Int. Med., Ophth., Path., Phys. Med., Rad., Surg., Urol.
Washington County Hospital ★	Hagerstown, Md.	Rad.
Veterans Admin. Hospital	Perry Point, Md.	Int. Med., Psych., Surg.
Chestnut Lodge Sanitarium	Rockville, Md.	Psych.
Springfield State Hospital	Sykesville, Md.	Psych.
Sheppard and Enoch Pratt Hospital	Towson, Md.	Psych.
Veterans Admin. Hospital	Bedford, Mass.	Psych.
Beverly Hospital ★	Beverly, Mass.	Int. Med., Path., Surg.
Beth Israel Hospital ★	Boston	Card. Dis., Gastro., Int. Med., Ob.-Gyn., Path., Psych., Rad., Surg., Urol.
Boston City Hospital ★	Boston	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Urol.
Boston Floating Hospital	Boston	Ped.
Boston Lying-In Hospital	Boston	Obst., Path.
Boston Psychopathic Hospital	Boston	Psych.
Boston Sanatorium	Boston	Pul. Dis., Thor. Surg.
Boston State Hospital	Boston	Psych.
Carney Hospital ★	Boston	Int. Med., Ob.-Gyn., Path., Surg.
Children's Medical Center ★	Boston	Neuro. Surg., Ortho. Surg., Path., Ped., Rad., Surg.
Faulkner Hospital	Boston	Int. Med., Path., Rad.
Lahey Clinic	Boston	Anes., Gastro., Int. Med., Neuro. Surg., Ortho. Surg., Rad.
Massachusetts Eye and Ear Infirmary	Boston	Ophth., Otol.
Massachusetts General Hospital ★	Boston	Allergy, Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Massachusetts Memorial Hospitals ★	Boston	Anes., Con. Dis., Derm. Syph., Gastro., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
New England Center Hospital ★	Boston	Anes., Int. Med., Neur., Neuro. Surg., Path., Psych., Rad., Surg., Urol.
New England Deaconess Hospital	Boston	Anes., Int. Med., Path., Rad.
New England Hospital ★	Boston	Anes., Obst.
Peter Bent Brigham Hospital ★	Boston	Anes., Int. Med., Neuro. Surg., Ortho. Surg., Path., Rad., Surg., Urol.
St. Elizabeth Hospital ★	Boston	Anes., Int. Med., Obst., Path., Psych., Rad., Surg.
St. Margaret's Hospital	Boston	Obst.
U. S. Public Health Service Hospital ★	Boston	Int. Med., Surg.
Veterans Admin. Hospital	Boston (Jamaica Plain)	Int. Med., Neur., Neuro. Surg., Ortho. Surg., Otol., Path., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Boston (West Roxbury)	Phys. Med., Urol.
Veterans Admin. Hospital	Brockton, Mass.	Psych.
Booth Memorial Hospital and Home	Brookline, Mass.	Obst.
Free Hospital for Women	Brookline, Mass.	Gyn.
Cambridge City Hospital ★	Cambridge, Mass.	Anes., Int. Med., Ob.-Gyn., Rad., Surg.
Mount Auburn Hospital ★	Cambridge, Mass.	Anes., Int. Med., Path., Rad., Surg., Urol.
Massachusetts Hospital School	Canton, Mass.	Ortho. Surg.
Lawrence F. Quigley Memorial Hospital	Chelsea, Mass.	Int. Med., Surg.
U. S. Naval Hospital ★	Chelsea, Mass.	Anes., Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Ped., Rad., Surg.
Fall River General Hospital, Tuberculosis Division	Fall River, Mass.	Pul. Dis.
St. Anne's Hospital	Fall River, Mass.	Gen'l Pract., Ob.-Gyn.
Truesdale Hospital ★	Fall River, Mass.	Int. Med., Path., Surg.
Burbank Hospital	Fitchburg, Mass.	Path., Surg.
Foxboro State Hospital	Foxboro, Mass.	Psych.
Danvers State Hospital	Hathorne, Mass.	Psych.
Holyoke Hospital ★	Holyoke, Mass.	Anes.
Lawrence General Hospital ★	Lawrence, Mass.	Path., Rad.
Lynn Hospital ★	Lynn, Mass.	Int. Med., Ortho. Surg., Path., Rad., Surg.
Malden Hospital	Malden, Mass.	Int. Med., Path., Surg.
Medfield State Hospital	Medfield, Mass.	Psych.
St. Luke's Hospital ★	New Bedford, Mass.	Path.
Newton-Wellesley Hospital ★	Newton, Mass.	Anes., Int. Med., Path., Rad., Surg.
Cooley Dickenson Hospital	Northampton, Mass.	Gen'l Pract.
Northampton State Hospital	Northampton, Mass.	Psych.
Quincy City Hospital ★	Quincy, Mass.	Ob.-Gyn., Path., Surg.
Veterans Admin. Hospital	Rutland Heights, Mass.	Pul. Dis., Thor. Surg.
Salem Hospital ★	Salem, Mass.	Int. Med., Path., Rad., Surg., Urol.
Shriners Hospital for Crippled Children	Springfield, Mass.	Ortho. Surg.
Springfield Hospital ★	Springfield, Mass.	Int. Med., Path., Rad., Surg.
Austen Riggs Foundation	Stockbridge, Mass.	Psych.
Taunton State Hospital	Taunton, Mass.	Psych.
Pondville Hospital	Walpole, Mass.	Path., Surg.
Metropolitan State Hospital	Waltham, Mass.	Psych.
Middlesex County Sanatorium	Waltham, Mass.	Pul. Dis.
McLean Hospital	Waverly, Mass.	Psych.
Westfield State Sanatorium	Westfield, Mass.	Mal. Dis., Pul. Dis., Surg.
Memorial Hospital ★	Worcester, Mass.	Int. Med., Path., Rad., Surg.
St. Vincent's Hospital ★	Worcester, Mass.	Anes., Int. Med., Surg.
Worcester City Hospital ★	Worcester, Mass.	Anes. Con. Dis., Int. Med., Ortho. Surg., Path., Ped., Psych., Pul. Dis., Surg.
Worcester State Hospital	Worcester, Mass.	Psych.
St. Joseph Mercy Hospital ★	Ann Arbor, Mich.	Int. Med., Ob.-Gyn., Rad., Surg.
University Hospital ★	Ann Arbor, Mich.	Allergy, Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg., Thor. Surg., Urol.
American Legion Hospital	Battle Creek, Mich.	Pul. Dis.

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Name of Hospital	Location	Approved Residencies
Leila Y. Post Montgomery Hospital ★	Battle Creek, Mich.	Int. Med., Path., Rad., Surg.
Veterans Admin. Hospital	Battle Creek, Mich.	Psych.
St. Joseph's Retreat	Dearborn, Mich.	Psych.
Veterans Admin. Hospital	Dearborn, Mich.	Int. Med., Neur., Ophth., Path., Psych., Rad., Surg., Urol.
Alexander Blain Hospital	Detroit	Int. Med., Surg.
Children's Hospital	Detroit	Ortho. Surg., Ped., Rad.
Detroit Memorial Hospital ★	Detroit	Anes., Int. Med., Ob.-Gyn., Path., Surg.
Evangelical Deaconess Hospital ★	Detroit	Int. Med., Ob.-Gyn.
Florence Crittenton Hospital	Detroit	Int. Med., Ob.-Gyn., Surg.
Grace Hospital ★	Detroit	Int. Med., Neuro. Surg., Ob.-Gyn., Path., Rad., Surg., Urol.
Harper Hospital ★	Detroit	Anes., Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Henry Ford Hospital ★	Detroit	Anes., Card. Dis., Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Plas. Surg., Psych., Pul. Dis., Rad., Surg., Urol.
Herman Kiefer Hospital	Detroit	Con. Dis., Obst., Path., Pul. Dis., Rad., Thor. Surg.
Jennings Memorial Hospital	Detroit	Int. Med., Surg.
Lynn Hospital	Detroit	Gen'l Pract.
Mount Carmel Mercy Hospital ★	Detroit	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Providence Hospital ★	Detroit	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Receiving Hospital ★	Detroit	Anes., Derm. Syph., Int. Med., Gyn., Ophth., Otol., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
St. John Hospital ★	Detroit	Ob.-Gyn., Surg.
St. Joseph Mercy Hospital ★	Detroit	Int. Med., Ob.-Gyn., Surg.
Saratoga General Hospital	Detroit	Gen'l Pract.
Sinai Hospital ★	Detroit	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Woman's Hospital ★	Detroit	Int. Med., Ob-Gyn., Path., Surg.
Wayne County General Hospital and Infirmary ★	Eloise, Mich.	Int. Med., Path., Psych., Rad., Surg., Urol.
Hurley Hospital ★	Flint, Mich.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
McLaren General Hospital ★	Flint, Mich.	Gen'l Pract., Int. Med., Path., Surg.
St. Joseph Hospital ★	Flint, Mich.	Gen'l Pract., Path., Rad.
Veterans Admin.	[illegible]	Psych.
Blodgett Memorial	[illegible]	Int. Med., Ob-Gyn., Ortho. Surg., Path., Rad., Surg., Urol.
Butterworth Hospital ★	Grand Rapids, Mich.	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Ferguson-Droste-Ferguson Hospital	Grand Rapids, Mich.	Proct.
St. Mary's Hospital ★	Grand Rapids, Mich.	Int. Med., Ob.-Gyn., Ped., Surg.
Highland Park General Hospital ★	Highland Park, Mich.	Ob.-Gyn., Surg.
Michigan State Sanatorium	Howell, Mich.	Pul. Dis.
Borgess Hospital ★	Kalamazoo, Mich.	Gen'l Pract., Ortho. Surg.
Bronson Methodist Hospital ★	Kalamazoo, Mich.	Int. Med., Surg.
Kalamazoo State Hospital	Kalamazoo, Mich.	Psych.
Edward W. Sparrow Hospital ★	Lansing, Mich.	Int. Med., Path., Surg.
Ingham Chest Hospital	Lansing, Mich.	Pul. Dis., Thor. Surg.
St. Lawrence Hospital ★	Lansing, Mich.	Int. Med.
Morgan Heights Sanatorium	Marquette, Mich.	Pul. Dis.
Mercy Hospital	Muskegon, Mich.	Gen'l Pract.
Northville State Hospital	Northville, Mich.	Psych.
William H. Maybury Sanatorium	Northville, Mich.	Pul. Dis.
Pontiac General Hospital ★	Pontiac, Mich.	Int. Med., Ob.-Gyn., Path., Surg.
Pontiac State Hospital	Pontiac, Mich.	Psych.
St. Joseph Mercy Hospital ★	Pontiac, Mich.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Saginaw General Hospital ★	Saginaw, Mich.	Int. Med., Ob.-Gyn., Occup. Med., Path., Ped., Surg.
St. Luke's Hospital ★	Saginaw, Mich.	Gen'l Pract.
St. Mary's Hospital ★	Saginaw, Mich.	Gen'l Pract.
James Decker Munson Hospital ★	Traverse City, Mich.	Gen'l Pract.
Traverse City State Hospital	Traverse City, Mich.	Psych.
Wyandotte General Hospital	Wyandotte, Mich.	Gen'l Pract.
Beyer Memorial Hospital	Ypsilanti, Mich.	Rad.
Ypsilanti State Hospital	Ypsilanti, Mich.	Psych.
St. Luke's Hospital ★	Duluth, Minn.	Path.
St. Mary's Hospital ★	Duluth, Minn.	Int. Med., Path.
Asbury Hospital	Minneapolis	Int. Med.
Fairview Hospital	Minneapolis	Gen'l Pract., Ortho. Surg.
Lutheran Deaconess Home and Hospital	Minneapolis	Gen'l Pract.
Minneapolis General Hospital ★	Minneapolis	Derm. Syph., Int. Med., Ob.-Gyn., Ophth., Otol., Path., Ped., Psych., Surg., Urol.
Mount Sinai Hospital ★	Minneapolis	Gen'l Pract., Int. Med., Surg.
Northwestern Hospital ★	Minneapolis	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
St. Barnabas Hospital ★	Minneapolis	Int. Med., Ob.-Gyn., Path., Surg.
St. Mary's Hospital ★	Minneapolis	Ob.-Gyn., Urol.
Shriners Hospital for Crippled Children	Minneapolis	Ortho. Surg.
Swedish Hospital ★	Minneapolis	Path., Rad., Surg.
University of Minnesota Hospitals ★	Minneapolis	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Proct., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Minneapolis	Derm. Syph., Int. Med., Neur., Ophth., Otol., Ortho. Surg., Path., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Glen Lake Sanatorium	Oak Terrace, Minn.	Pul. Dis.
Mayo Foundation	Rochester, Minn.	Allergy, Anes., Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Plas. Surg., Proct., Psych., Pul. Dis., Rad., Surg., Urol.
Rochester State Hospital	Rochester, Minn.	Psych.
Ancker Hospital ★	St. Paul, Minn.	Derm. Syph., Int. Med., Otol., Path., Surg., Urol.
Charles T. Miller Hospital ★	St. Paul, Minn.	Int. Med., Ob.-Gyn., Ophth., Path., Rad., Surg., Urol.
Gillette State Hospital for Crippled Children	St. Paul, Minn.	Ortho. Surg.
Midway Hospital	St. Paul, Minn.	Gen'l Pract.
St. Joseph's Hospital ★	St. Paul, Minn.	Ob.-Gyn., Path., Rad., Surg.
Veterans Admin. Hospital	Gulfport, Miss.	Psych.
Mississippi Baptist Hospital ★	Jackson, Miss.	Ortho. Surg.
Mississippi State Tuberculosis Sanatorium	Sanatorium, Miss.	Pul. Dis.
Mercy Hospital-Street Memorial ★	Vicksburg, Miss.	Gen'l Pract., Surg.
Vicksburg Hospital	Vicksburg, Miss.	Surg.
Mississippi State Hospital	Whitfield, Miss.	Psych.
St. Louis County Hospital ★	Clayton, Mo.	Int. Med., Ob.-Gyn., Ophth., Path., Surg.
Ellis Fischel Cancer Hospital	Columbia, Mo.	Mal. Dis., Surg.
Veterans Admin. Hospital	Excelsior Springs, Mo.	Pul. Dis.
Children's Mercy Hospital	Kansas City, Mo.	Ortho. Surg., Ped.
Kansas City General Hospital No. 1 ★	Kansas City, Mo.	Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Urol.
Kansas City General Hospital No. 2 ★	Kansas City, Mo.	Ob.-Gyn., Rad., Surg.
Menorah Hospital Medical Center ★	Kansas City, Mo.	Int. Med., Path., Rad., Surg.
Research Hospital ★	Kansas City, Mo.	Anes., Int. Med., Path., Rad., Surg., Urol.
St. Joseph Hospital ★	Kansas City, Mo.	Int. Med., Ob.-Gyn., Path., Rad., Surg.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
St. Luke's Hospital ★	Kansas City, Mo.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg.
St. Mary's Hospital ★	Kansas City, Mo.	Path., Surg.
Veterans Admin. Hospital	Kansas City, Mo.	Int. Med., Neur., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
Robert Koch Hospital	Koch, Mo.	Pul. Dis.
Missouri Methodist Hospital ★	St. Joseph, Mo.	Gen'l Pract., Surg.
State Hospital No. 2	St. Joseph, Mo.	Psych.
Alexian Brothers Hospital	St. Louis	Gen'l Pract.
Barnes Hospital ★	St. Louis	Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Plas. Surg., Psych., Rad., Surg., Thor. Surg., Urol.
De Paul Hospital ★	St. Louis	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Homer G. Phillips Hospital ★	St. Louis	Int. Med., Ob.-Gyn., Ophth., Otol., Path., Ped., Psych., Rad., Surg., Urol.
Jewish Hospital ★	St. Louis	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Missouri Baptist Hospital ★	St. Louis	Ob.-Gyn., Path., Surg., Urol.
Missouri Pacific Hospital	St. Louis	Int. Med., Surg., Urol.
St. Anthony's Hospital ★	St. Louis	*Gen'l Pract., Int. Med., Surg.*
St. John's Hospital ★	St. Louis	Anes., Int. Med., Obst., Path., Surg.
St. Louis Children's Hospital ★	St. Louis	Otol., Ped., Surg.
St. Louis City Hospital ★	St. Louis	Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Urol.
St. Louis State Hospital	St. Louis	Psych.
St. Luke's Hospital ★	St. Louis	Int. Med., Ob.-Gyn., Rad., Surg.
St. Mary's Group of Hospitals ★	St. Louis	Derm. Syph., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Pul. Dis., Rad., Surg., Urol.
Shriners Hospital for Crippled Children	St. Louis	Ortho. Surg.
Veterans Admin. Hospital	St. Louis	Anes., Int. Med., Ophth., Otol., Ortho. Surg., Path., Rad., Surg., Thor. Surg., Urol.
Butte Community Memorial Hospital ★	Butte, Mont.	Gen'l Pract.
Montana Deaconess Hospital ★	Great Falls, Mont.	Int. Med., Path.
Hastings State Hospital	Ingleside, Neb.	Psych.
Lincoln General Hospital ★	Lincoln, Neb.	Ob.-Gyn., Path.
Nebraska Orthopedic Hospital	Lincoln, Neb.	Ortho. Surg.
St. Elizabeth's Hospital ★	Lincoln, Neb.	Ob.-Gyn., Surg.
Veterans Admin. Hospital	Lincoln, Neb.	Int. Med., Ortho. Surg., Surg., Urol.
Norfolk State Hospital	Norfolk, Neb.	Psych.
Bishop Clarkson Memorial Hospital ★	Omaha	Ob.-Gyn., Path.
Creighton Memorial-St. Joseph Hospital ★	Omaha	Int. Med., Ob.-Gyn., Path., Ped., Psych., Rad., Surg.
Immanuel Hospital ★	*Omaha*	*Ob.-Gyn.*
Lutheran Hospital	Omaha	Psych.
Nebraska Methodist Hospital ★	Omaha	Path., Rad.
St. Catherine's Hospital ★	Omaha	Rad.
University of Nebraska Hospital ★	Omaha	Anes., Int. Med., Ob.-Gyn., *Ophth., Ortho. Surg., Path., Ped., Psych.*, Rad., Surg.
Veterans Admin. Hospital	Omaha	Int. Med., Psych., Surg.
New Hampshire State Hospital	Concord, N. H.	Psych.
Mary Hitchcock Memorial Hospital ★	Hanover, N. H.	Anes., Derm. Syph., Int. Med., Neuro Surg., Path., Ped., Phys. Med., Rad., Surg., Urol.
Elliott Hospital	Manchester, N. H.	Path.
Atlantic City Hospital ★	Atlantic City, N. J.	*Int. Med., Path., Rad., Surg.*
Bayonne Hospital and Dispensary ★	Bayonne, N. J.	Urol.
Essex County Hospital for Contagious Diseases	Belleville, N. J.	Con. Dis.
Cooper Hospital ★	Camden, N. J.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
West Jersey Hospital ★	Camden, N. J.	Path., Surg.
Essex County Overbrook Hospital	Cedar Grove, N. J.	Psych.
Veterans Admin. Hospital	East Orange, N. J.	Int. Med., Neur., Otol., Path., Rad., Surg.
Englewood Hospital ★	Englewood, N. J.	Int. Med., Path.
Hunterdon Medical Center	Flemington, N. J.	Gen'l Pract.
New Jersey Sanatorium for Chest Diseases	Glen Garden, N. J.	Pul. Dis.
New Jersey State Hospital	Greystone Park, N. J.	Psych.
Hackensack Hospital ★	Hackensack, N. J.	Int. Med., Ob.-Gyn., Rad., Surg.
Berthold S. Pollack Hospital for Chest Diseases	Jersey City, N. J.	Pul. Dis., Thor. Surg.
Christ Hospital ★	Jersey City, N. J.	Path.
Margaret Hague Maternity Hospital	Jersey City, N. J.	Obst.
Medical Center-Jersey City Hospital ★	Jersey City, N. J.	Anes., Int. Med., Gyn., Ophth., Path., Ped., Rad., Surg., Urol.
Monmouth Memorial Hospital ★	Long Branch, N. J.	Obst., Ortho. Surg., Path., Surg.
Veterans Admin. Hospital	Lyons, N. J.	Psych.
New Jersey State Hospital	Marlboro, N. J.	Psych.
Mountainside Hospital ★	Montclair, N. J.	Gen'l Pract., Int. Med., Path., Surg.
Morristown Memorial Hospital ★	Morristown, N. J.	Gen'l Pract., Int. Med., Path., Rad., Surg.
Burlington County Hospital	Mount Holly, N. J.	Int. Med., Path., Rad., Surg.
Fitkin Memorial Hospital ★	Neptune, N. J.	Int. Med., Surg.
Babies' Hospital-Coit Memorial	Newark, N. J.	Ped.
Harrison S. Martland Medical Center ★	Newark, N. J.	Int. Med., Ob.-Gyn., Path., Rad., Surg., Urol.
Hospital and Home for Crippled Children	Newark, N. J.	Ortho. Surg.
Hospital of St. Barnabas and for Women and Children ★	Newark, N. J.	Path., Plas. Surg., Rad., Surg.
Newark Beth Israel Hospital ★	Newark, N. J.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Newark Eye and Ear Infirmary	Newark, N. J.	Ophth., Otol.
Presbyterian Hospital ★	Newark, N. J.	Path., Surg.
St. Michael's Hospital ★	Newark, N. J.	Int. Med., Ob.-Gyn., Path., Ped.
St. Peter's General Hospital ★	New Brunswick, N. J.	Int. Med.
New Jersey Orthopedic Hospital and Dispensary	Orange, N. J.	Ortho. Surg.
Orange Memorial Hospital ★	Orange, N. J.	Int. Med., Ortho. Surg., Path., Rad., Surg., Urol.
Bergen Pines County Hospital		Int. Med., Neur., *Path., Psych., Pul. Dis.*
Passaic General Hospital ★		Ob.-Gyn., Path.
St. Mary Hospital ★	Passaic, N. J.	Path.
Barnert Memorial Hospital ★	Paterson, N. J.	Path.
Paterson General Hospital ★	Paterson, N. J.	Int. Med., Obst., Path.
St. Joseph Hospital ★	Paterson, N. J.	Anes., Path.
Muhlenberg Hospital ★	Plainfield, N. J.	Path.
Princeton Hospital	Princeton, N. J.	Gen'l Pract.
New Jersey Neuro-Psychiatric Institute	Skillman, N. J.	Psych.
Overlook Hospital ★	Summit, N. J.	Gen'l Pract., Path.
Holy Name Hospital ★	Teaneck, N. J.	Ob.-Gyn.
Mercer Hospital ★	Trenton, N. J.	Int. Med., Path., Rad.
New Jersey State Hospital	Trenton, N. J.	Psych.
Orthopedic Hospital and Dispensary	Trenton, N. J.	Ortho. Surg.
St. Francis Hospital ★	Trenton, N. J.	Int. Med., Ob.-Gyn., Path., Ped., Surg.
Essex Mountain Sanatorium	Verona, N. J.	Pul. Dis.
Veterans Admin. Hospital	Albuquerque, N. Mex.	Int. Med., Path., Pul. Dis., Surg.
Carrie Tingley Hospital for Crippled Children	Truth or Consequences, N. Mex.	Ortho. Surg.
Albany Hospital ★	Albany, N. Y.	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Otol., Ortho. Surg., Path., Ped., Plas. Surg., Psych., Pul. Dis., Rad., Surg., Urol.
Anthony N. Brady Maternity Hospital	Albany, N. Y.	Obst.
Bender Hygienic Laboratory	*Albany, N. Y.*	*Path.*
St. Peter's Hospital ★	Albany, N. Y.	Ped.
Veterans Admin. Hospital	Albany, N. Y.	Int. Med., Path., Psych., Rad., Surg.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
Veterans Admin. Hospital	Y.	Int. Med.
Binghampton City	Y.	Int. Med., Path., Surg.
Binghamton State	Y.	Psych.
Beth-El Hospital ★	Brooklyn	Anes., Int. Med., Ob.-Gyn., Path., Ped., Surg.
Brooklyn Eye and Ear Hospital	Brooklyn	Ophth., Otol.
Brooklyn Hospital ★	Brooklyn	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Brooklyn State Hospital	Brooklyn	Psych.
Brooklyn Womens Hospital	Brooklyn	Ob.-Gyn.
Coney Island Hospital ★	Brooklyn	Int. Med., Ob.-Gyn., Path., Ped., Surg.
Cumberland Hospital ★	Brooklyn	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Greenpoint Hospital ★	Brooklyn	Int Med., Ob.-Gyn., Path., Ped., Surg.
House of St. Giles the Cripple	Brooklyn	Ortho. Surg.
Jewish Chronic Disease Hospital	Brooklyn	Int. Med., Neur., Path.
Jewish Hospital ★	Brooklyn	Allergy, Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
John E. Jennings Hospital	Brooklyn	Rad., Surg.
Kings County Hospital ★	Brooklyn	Anes., Path., Rad.
County Service	Brooklyn	Derm. Syph., Int. Med., Ortho. Surg., Otol., Ped., Plas. Surg., Pul. Dis., Surg., Thor. Surg., Urol.
University Service	Brooklyn	Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Ped., Psych., Surg., Thor. Surg., Urol.
Long Island College Hospital ★	Brooklyn	Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Maimonides Hospital ★	Brooklyn	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Methodist Hospital ★	Brooklyn	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Norwegian Lutheran Deaconess Home and Hospital ★	Brooklyn	Int. Med., Ob.-Gyn., Path., Ped., Surg.
St. Catherine's Hospital ★	Brooklyn	Anes., Int. Med., Ob.-Gyn., Path., Ped., Surg.
St. Charles Hospital Orthopedic Clinic	Brooklyn	Ortho. Surg.
St. John's Episcopal Hospital ★	Brooklyn	Int. Med., Ob.-Gyn., Ped., Surg.
St. Mary's Hospital ★	Brooklyn	Ob.-Gyn., Path.
Unity Hospital ★	Brooklyn	Ob.-Gyn.
Veterans Admin. Hospital	Brooklyn	Anes., Int. Med., Neur., Ophth., Ortho. Surg., Path., Psych., Rad., Surg., Thor. Surg., Urol.
Wyckoff Heights Hospital ★	Brooklyn	Int. Med., Ob.-Gyn., Ped., Surg.
Buffalo General Hospital ★	Buffalo	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Rad., Surg., Urol.
Buffalo State Hospital	Buffalo	Psych.
Children's Hospital	Buffalo	Ortho. Surg., Ped.
Deaconess Hospital ★	Buffalo	Int. Med., Ob.-Gyn., Path., Surg.
Edward J. Meyer Memorial Hospital ★	Buffalo	Anes., Derm. Syph., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Emergency Hospital of the Sisters of Charity	Buffalo	Int Med., Surg.
Mercy Hospital ★	Buffalo	Gen'l Pract.
Millard Fillmore Hospital ★	Buffalo	Anes., Gen'l Pract., Int. Med., Ob.-Gyn., Path., Proct., Surg., Urol.
Roswell Park Memorial Institute	Buffalo	Rad.
Sisters of Charity Hospital ★	Buffalo	Int. Med., Ob.-Gyn., Surg.
Veterans Admin. Hospital	Buffalo	Anes , Int. Med., Ortho. Surg., Path., Phys. Med., Psych., Rad., Surg., Thor. Surg., Urol.
Mary McClellan Hospital	Cambridge, N. Y.	Surg.
Veterans Admin. Hospital	Canandaigua, N. Y.	Psych.
Veterans Admin. Hospital	Castle Point, N. Y.	Pul. Dis., Thor. Surg.
Central Islip State Hospital	Central Islip, N. Y.	Psych.
Clifton Springs Sanitarium and Clinic	Clifton Springs, N. Y.	Int. Med., Rad., Surg.
Mary Imogene Bassett Hospital ★	Cooperstown, N. Y.	Int. Med., Ob.-Gyn., Ped., Surg.
Arnot-Ogden Memorial Hospital ★	Elmira, N. Y.	Path
Nassau County Tuberculosis Hospital	Farmingdale, N. Y.	Pul. Dis
St. Joseph's Hospital	Far Rockaway, N. Y.	Gen'l Pract.
Flushing Hospital and Dispensary ★	Flushing, N. Y.	Anes , Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Hillside Hospital	Glen Oaks, N. Y.	Psych.
Glens Falls Hospital ★	Glens Falls, N. Y.	Path.
Meadowbrook Hospital ★	Hempstead, N. Y.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Irvington House	Irvington, N. Y.	Card. Dis.
Cornell University Infirmary	Ithaca, N. Y.	Int. Med.
Tompkins Memorial Hospital	Ithaca, N. Y.	Int. Med.
Herman M. Biggs Memorial Hospital	Ithaca, N. Y.	Pul. Dis., Thor. Surg.
Jamaica Hospital ★	Jamaica, N. Y.	Int. Med., Surg.
Mary Immaculate Hospital ★	Jamaica, N. Y.	Int. Med., Obst., Path., Ped., Surg.
Queens General Hospital ★	Jamaica, N. Y.	Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Triboro Hospital	Jamaica, N. Y.	Pul. Dis., Thor. Surg.
Charles S. Wilson Memorial Hospital ★	Johnson City, N. Y.	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Pinewood Sanitarium	Katona, N. Y.	Psych.
Kings Park State Hospital	Kings Park, N. Y.	Psych.
Benedictine Hospital	Kingston, N. Y.	Gen'l Pract.
Kingston Hospital	Kingston, N. Y.	Gen'l Pract.
Ulster County Tuberculosis Hospital	Kingston, N. Y.	Path.
Our Lady of Victory Hospital ★	Lackawanna, N. Y.	Gen'l Pract.
Niagara Sanatorium	Lockport, N. Y.	Pul. Dis.
River Crest Sanitarium	Long Island City, N. Y.	Psych.
St. John's Long Island City Hospital ★	Long Island City, N. Y.	Path.
North Shore Hospital	Manhasset, N. Y.	Int. Med., Ob.-Gyn.
Marcy State Hospital	Marcy, N. Y.	Psych.
Middletown State Hospital	Middletown, N. Y.	Psych.
Nassau Hospital ★	Mineola, N. Y.	Ob.-Gyn., Ophth., Ortho. Surg., Path., Surg.
Veterans Admin. Hospital	Montrose, N. Y.	Psych.
Mount Morris Tuberculosis Hospital	Mount Morris, N. Y.	Pul. Dis., Thor. Surg.
Mount Vernon Hospital	Mount Vernon, N. Y.	Int. Med., Path., Rad., Surg.
New Rochelle Hospital ★	New Rochelle, N. Y.	Int. Med., Path., Rad., Surg.
Bellevue Hospital Center		
Div. I—Columbia University ★	New York City	Int. Med., Pul. Dis., Surg., Thor. Surg.
Div. II—Cornell University ★	New York City	Int. Med., Neur., Surg., Urol.
Div. III—New York University College of Medicine ★	New York City	Int. Med., Neur., Ob.-Gyn., Path., Ped., Phys. Med., Psych., Rad., Surg.
Div. IV—New York University Post-Graduate Medical School ★	New York City	Anes., Derm. Syph., Int. Med., Neuro. Surg., Ophth., Otol., Ortho. Surg., Rad., Surg., Urol.
Beth David Hospital ★	New York City	Int. Med., Ob.-Gyn., Rad., Surg.
Beth Israel Hospital ★	New York City	Anes., Int. Med., Ob.-Gyn., Ophth., Path., Plas. Surg., Rad., Surg., Urol.
Bird S. Coler Memorial Hospital and Home	New York City	Int. Med., Phys. Med.
Bronx Eye and Ear Infirmary	New York City	Ophth.
Bronx Hospital ★	New York City	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Columbus Hospital ★	New York City	Surg.
Doctors Hospital	New York City	Path., Rad.
Flower and Fifth Avenue Hospitals	New York City	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Fordham Hospital ★	New York City	Int. Med., Neur., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Francis Delafield Hospital	New York City	Gyn., Int. Med., Path., Rad., Surg.
French Hospital ★	New York City	Int. Med., Ob.-Gyn., Rad., Surg., Urol.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
Goldwater Memorial Hospital	New York City	
Open Div. II		Ophth., Path., Phys. Med., Rad., Surg.
University Div. III		Int. Med., Neur.
Gouverneur Hospital	New York City	Surg.
Harlem Eye and Ear Hospital	New York City	Ophth., Otol.
Harlem Hospital ★	New York City	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Hospital for Joint Diseases ★	New York City	Anes., Int. Med., Gyn., Ortho. Surg., Path., Phys. Med., Rad., Surg.
Hospital for Special Surgery	New York City	Ortho. Surg., Phys. Med.
Jewish Memorial Hospital ★	New York City	Int. Med., Ob.-Gyn., Path., Surg.
Knickerbocker Hospital ★	New York City	Int. Med., Path., Surg.
Lebanon Hospital ★	New York City	Int. Med., Path., Surg.
Lenox Hill Hospital ★	New York City	Anes., Card. Dis., Int. Med., Ob.-Gyn., Ophth., Path., Ped., Rad., Surg.
Lincoln Hospital ★	New York City	Int. Med., Ob.-Gyn., Ped., Rad., Surg., Urol.
Manhattan Eye, Ear and Throat Hospital	New York City	Ophth., Otol.
Manhattan General Hospital	New York City	Pul. Dis.
Manhattan State Hospital	New York City	Psych.
Memorial Center for Cancer and Allied Diseases	New York City	Anes., Int. Med., Path., Rad., Surg.
Metropolitan Hospital ★	New York City	Anes., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Phys. Med., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Misericordia Hospital ★	New York City	Int. Med., Obst., Ped., Surg.
Montefiore Hospital ★	New York City	Anes., Int. Med., Mal. Dis., Neur., Ophth., Path., Phys. Med., Pul. Dis., Rad., Surg., Thor. Surg.
Morrisania City Hospital ★	New York City	Int. Med., Neur., Ob.-Gyn., Path., Ped., Pul. Dis., Rad., Surg., Urol.
Mother Cabrini Memorial Hospital ★	New York City	Surg.
Mount Sinai Hospital ★	New York City	Anes., Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
New York City Hospital ★	New York City	Anes., Derm. Syph., Int. Med., Neur., Ob.-Gyn., Ophth., Otol., Path., Ped., Phys. Med., Pul. Dis., Rad., Surg., Urol.
New York Eye and Ear Infirmary	New York City	Ophth., Otol.
New York Hospital ★	New York City	Anes., Derm. Syph., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
New York Infirmary ★	New York City	Int. Med., Obst., Ped., Surg.
New York Polyclinic Medical School and Hospital ★	New York City	Anes., Derm. Syph., Gastro., Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Rad., Surg., Urol.
New York State Psychiatric Institute and Hospital	New York City	Psych.
New York University-Bellevue Medical Center		
University Hospital	New York City	Allergy, Derm. Syph., Int. Med., Gyn., Path., Ped., Psych., Rad.
Presbyterian Hospital ★	New York City	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg, Path., Ped., Phys. Med., Plas. Surg., Rad., Surg., Urol.
Roosevelt Hospital ★	New York City	Allergy, Int. Med., Gyn., Otol., Path., Ped., Psych., Rad., Surg., Urol.
St. Barnabas Hospital for Chronic Diseases	New York City	Int. Med., Path.
St. Clare's Hospital ★	New York City	Anes., Int. Med., Ob.-Gyn., Path., Ped., Surg., Urol.
St. Francis Hospital ★	New York City	Int. Med., Ob.-Gyn., Rad., Surg.
St. Joseph Hospital for Chest Diseases	New York City	Pul. Dis., Thor. Surg.
St. Luke's Hospital ★	New York City	Anes., Card. Dis., Derm. Syph., Int. Med., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Rad., Surg., Urol.
St. Vincent's Hospital ★	New York City	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Path., Ped., Rad., Surg.
Sydenham Hospital ★	New York City	Int. Med., Ob.-Gyn., Ped., Rad., Surg.
Veterans Admin. Hospital	New York City (Bronx)	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ophth., Otol., Ortho. Surg., Path., Phys. Med., Plas. Surg., Psych., Rad., Surg., Thor. Surg., Urol.
Veterans Admin. Hospital	New York City (Manhattan)	Urol.
Willard Parker Hospital	New York City	Con. Dis., Pul. Dis.
Woman's Hospital	New York City	Ob.-Gyn.
St. Lawrence State Hospital	Ogdensburg, N. Y.	Psych.
Homer Folks Tuberculosis Hospital	Oneonta, N. Y.	Pul. Dis., Thor. Surg.
Rockland State Hospital	Orangeburg, N. Y.	Psych.
Stony Lodge Sanitarium	Ossining, N. Y.	Psych.
High Point Hospital	Port Chester, N. Y.	Psych.
United Hospital ★	Port Chester, N. Y.	Int. Med., Obst., Path., Rad., Surg.
St. Charles Hospital for Crippled Children	Port Jefferson, N. Y.	Ortho. Surg.
Hudson River State Hospital	Poughkeepsie, N. Y.	Psych.
Creedmoor State Hospital	Queens Village, N. Y.	Psych.
Raybrook State Tuberculosis Hospital	Raybrook, N. Y.	Pul. Dis., Thor. Surg.
Genesee Hospital ★	Rochester, N. Y.	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Highland Hospital ★	Rochester, N. Y.	Anes., Int. Med., Ob.-Gyn., Surg.
Iola-Monroe County Tuberculosis Sanatorium	Rochester, N. Y.	Pul. Dis.
Rochester General Hospital ★	Rochester, N. Y.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg.
Rochester State Hospital	Rochester, N. Y.	Psych.
St. Mary's Hospital ★	Rochester, N. Y.	Anes., Int. Med., Ob.-Gyn., Ophth., Path., Ped., Rad., Surg.
Strong Memorial-Rochester Municipal Hospitals ★	Rochester, N. Y.	Anes., Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
St. Francis Sanatorium for Cardiac Children	Roslyn, L. I., N. Y.	Card. Dis.
U. S. Naval Hospital ★	St. Albans, N. Y.	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Rad., Surg., Thor. Surg., Urol.
Ellis Hospital ★	Schenectady, N. Y.	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Psych., Rad., Surg.
Glenridge Sanatorium	Schenectady, N. Y.	Pul. Dis.
U. S. Public Health Service Hospital ★	Stapleton (Staten Island), N. Y.	Anes., Derm. Syph., Int. Med., Ophth., Path., Rad., Surg., Urol.
St. Vincent's Hospital ★	Staten Island, N. Y.	Ortho. Surg., Ped.
Sea View Hospital	Staten Island, N. Y.	Ophth., Ortho. Surg., Ped., Pul. Dis., Thor. Surg.
Staten Island Hospital ★	Staten Island, N. Y.	Int. Med., Path.
Veterans Admin. Hospital	Sunmount, N. Y.	Pul. Dis., Thor. Surg.
General Hospital ★	Syracuse, N. Y.	Ob.-Gyn.
St. Joseph's Hospital ★	Syracuse, N. Y.	Ob.-Gyn., Path., Ped.
State University of New York Medical Center ★	Syracuse, N. Y.	Anes., Int. Med., Ob.-Gyn., Ophth., Otol., Path., Ped., Plas. Surg., Rad., Surg.
Syracuse Psychopathic Hospital	Syracuse, N. Y.	Psych.
Letchworth Village	Theills, N. Y.	Psych.
Samaritan Hospital ★	Troy, N. Y.	Path.
Utica State Hospital	Utica, N. Y.	Path., Psych.
Grasslands Hospital ★	Valhalla, N. Y.	Anes., Int. Med., Ophth., Path., Ped., Psych., Pul. Dis., Rad., Surg.
Pilgrim State Hospital	West Brentwood, N. Y.	Psych.
Rehabilitation Hospital	West Haverstraw, N. Y.	Ortho. Surg.
New York Hospital-Westchester Division	White Plains, N. Y.	Psych.
White Plains Hospital ★	White Plains, N. Y.	Int. Med., Surg.
Willard State Hospital	Willard, N. Y.	Psych.
Harlem Valley State Hospital	Wingdale, N. Y.	Psych.
St. John's Riverside Hospital ★	Yonkers, N. Y.	Path., Rad.
North Carolina Memorial Hospital ★	Chapel Hill, N. C.	Anes., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., Rad., Surg.
Charlotte Memorial Hospital ★	Charlotte, N. C.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Mercy Hospital ★	Charlotte, N. C.	Gen'l Pract.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
Duke Hospital ★	Durham, N. C.	Allergy, Anes., Card. Dis., Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Lincoln Hospital ★	Durham, N. C.	Ob.-Gyn., Surg.
McPherson Hospital	Durham, N. C.	Ophth., Otol.
Veterans Admin. Hospital	Durham, N. C.	Int. Med., Ortho. Surg., Path., Plas. Surg., Psych., Rad., Surg.
Watts Hospital ★	Durham, N. C.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Urol.
North Carolina Orthopedic Hospital	Gastonia, N. C.	Ortho. Surg.
North Carolina Sanatorium for the Treatment of Tuberculosis	McCain, N. C.	Pul. Dis.
Veterans Admin. Hospital	Oteen, N. C.	Path., Pul. Dis., Thor. Surg.
Rex Hospital ★	Raleigh, N. C.	Int. Med., Ob.-Gyn., Ped., Surg.
St. Agnes Hospital ★	Raleigh, N. C.	Int. Med., Ob.-Gyn., Surg.
State Hospital	Raleigh, N. C.	Psych.
Babies Hospital	Wilmington, N. C.	Ped.
City Memorial Hospital ★	Winston-Salem, N. C.	Gen'l Pract., Int. Med., Ob.-Gyn., Ped., Surg.
Kate Bitting Reynolds Memorial Hospital ★	Winston-Salem, N. C.	Int. Med., Surg.
North Carolina Baptist Hospital ★	Winston-Salem, N. C.	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Thor. Surg., Urol.
Bismarck Hospital	Bismarck, N. Dak.	Int. Med., Rad., Surg.
St. Luke's Hospital ★	Fargo, N. Dak.	Int. Med., Ob.-Gyn., Surg.
Akron General Hospital ★	Akron, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Children's Hospital	Akron, Ohio	Ortho. Surg., Ped., Surg.
City Hospital ★	Akron, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg., Urol.
St. Thomas Hospital ★	Akron, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Surg.
Veterans Admin. Hospital	Brecksville, Ohio	Pul. Dis.
Aultman Hospital ★	Canton, Ohio	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Mercy Hospital ★	Canton, Ohio	Anes., Gen'l Pract., Int. Med., Ob.-Gyn., Rad., Surg.
Windsor Hospital	Chagrin Falls, Ohio	Psych.
Bethesda Hospital ★	Cincinnati	Int. Med., Ob -Gyn., Path.
Children's Hospital	Cincinnati	Ortho. Surg., Ped., Surg.
Christ Hospital ★	Cincinnati	Anes., Gen'l Pract., Int. Med., Neuro. Surg., Path., Psych., Surg.
Cincinnati General Hospital ★	Cincinnati	Card. Dis , Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Urol.
Deaconess Hospital ★	Cincinnati	Int. Med., Surg.
Good Samaritan Hospital ★	Cincinnati	Gen'l Pract., Int. Med., Neuro. Surg., Path., Ped., Rad., Surg.
Jewish Hospital ★	Cincinnati	Int. Med., Ortho. Surg., Path., Psych., Rad., Surg.
Longview State Hospital	Cincinnati	Psych.
St. Mary's Hospital ★	Cincinnati	Int. Med., Surg.
City Hospital ★	Cleveland	Anes., Con. Dis., Derm. Syph., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Path., Ped., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Cleveland Clinic Hospital	Cleveland	Anes., Card. Dis., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ophth., Ortho Surg., Otol., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Cleveland Receiving Hospital	Cleveland	Psych.
Evangelical Deaconess Hospital ★	Cleveland	Ob.-Gyn., Surg.
Fairview Park Hospital ★	Cleveland	Int. Med., Obst., Surg.
Lutheran Hospital ★	Cleveland	Int. Med , Obst., Path., Rad., Surg.
Mount Sinai Hospital ★	Cleveland	Anes , Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg.
St. Alexis Hospital ★	Cleveland	Int Med., Ob.-Gyn., Surg.
St. Ann Hospital	Cleveland	Obst.
St. John's Hospital ★	Cleveland	Int. Med., Ob.-Gyn., Surg.
St. Luke's Hospital ★	Cleveland	Anes , Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg.
St. Vincent Charity Hospital ★	Cleveland	Int. Med., Path., Rad., Surg.
Sunny Acres, Cuyahoga County Tuberculosis Hospital	Cleveland	Pul. Dis , Thor. Surg.
University Hospitals ★	Cleveland	Anes , Derm. Syph., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg , Path., Ped., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Cleveland	Int. Med., Neuro. Surg., Ophth., Ortho. Surg., Otol., Path., Phys. Med., Psych., Rad., Surg., Thor. Surg., Urol.
Doctors Hospital ★	Cleveland Heights	Gen'l Pract., Surg.
Benjamin Franklin Hospital	Columbus, Ohio	Pul. Dis., Thor. Surg.
Children's Hospital	Columbus, Ohio	Ortho. Surg., Path., Ped., Surg.
Columbus State Hospital	Columbus, Ohio	Psych.
Grant Hospital ★	Columbus, Ohio	Path.
Mount Carmel Hospital ★	Columbus, Ohio	Int. Med., Obst., Ortho. Surg., Surg.
Ohio State University Hospitals		
Columbus Receiving Hospital	Columbus, Ohio	Psych.
Ohio Tuberculosis Hospital	Columbus, Ohio	Pul. Dis., Thor. Surg.
University Hospital ★	Columbus, Ohio	Anes., Card. Dis., Gastro., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Phys. Med., Plas. Surg., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
St. Ann Hospital for Women	Columbus, Ohio	Ob.-Gyn.
White Cross Hospital ★	Columbus, Ohio	Card. Dis., Gen'l Pract., Int. Med., Neuro. Surg., Ob.-Gyn., Ortho. Surg., Path., Surg.
Good Samaritan Hospital ★	Dayton, Ohio	Ob.-Gyn., Surg.
Miami Valley Hospital ★	Dayton, Ohio	Int. Med., Obst., Path., Rad., Surg.
St. Elizabeth Hospital ★	Dayton, Ohio	Rad., Surg.
Veterans Admin. Hospital	Dayton, Ohio	Int. Med , Path., Surg., Urol.
Huron Road Hospital ★	East Cleveland, Ohio	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg., Urol.
Elyria Memorial Hospital and Gates Hospital for Crippled Children ★	Elyria, Ohio	Ortho. Surg., Rad.
Euclid-Glenville Hospital ★	Euclid, Ohio	Gen'l Pract.
Holzer Hospital	Gallipolis, Ohio	Surg.
Marymount Hospital ★	Garfield Heights, Ohio	Anes., Int. Med., Ob.-Gyn., Surg.
Mercy Hospital ★	Hamilton, Ohio	Path., Surg.
Lakewood Hospital ★	Lakewood, Ohio	Int. Med , Ob.-Gyn., Surg.
Lima Memorial Hospital ★	Lima, Ohio	Gen'l Pract.
St. Rita's Hospital ★	Lima, Ohio	Gen'l Pract., Int. Med., Obst., Path., Surg.
Mansfield General Hospital	Mansfield, Ohio	Surg.
Massillon State Hospital	Massillon, Ohio	Psych.
Maumee Valley Hospital ★	Toledo, Ohio	Int. Med., Obst., Surg.
Mercy Hospital ★	Toledo, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
St. Vincent's Hospital ★	Toledo, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg., Urol.
Toledo Hospital ★	Toledo, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Harding Sanitarium	Worthington, Ohio	Psych.
Mahoning County Tuberculosis Sanatorium	Youngstown, Ohio	Pul. Dis.
St. Elizabeth Hospital ★	Youngstown, Ohio	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Youngstown Hospital ★	Youngstown, Ohio	Anes., Gen'l Pract., Int. Med., Ortho. Surg., Proct., Rad., Surg.
Central Oklahoma State Hospital	Norman, Okla.	Psych.
Bone and Joint Hospital and McBride Clinic	Oklahoma City	Ortho. Surg.
St. Anthony Hospital ★	Oklahoma City	Int. Med., Ob.-Gyn., Ortho. Surg., Surg.
University Hospitals ★	Oklahoma City	Anes., Derm. Syph., Gen'l Pract., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Rad., Surg., Urol.
Veterans Admin. Hospital ★	Oklahoma City	Int. Med., Ortho. Surg., Rad., Surg.
Wesley Hospital ★	Oklahoma City	Int. Med., Ob.-Gyn., Rad., Surg.

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Name of Hospital	Location	*Approved Residencies*
Hillcrest Medical Center ★	Tulsa, Okla.	Path., Ped., Surg.
St. John's Hospital ★	Tulsa, Okla.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Emanuel Hospital ★	Portland, Ore.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Surg.
Good Samaritan Hospital ★	*Portland, Ore.*	*Int. Med., Path., Surg.*
Providence Hospital ★	Portland, Ore.	Int. Med., Path., Rad., Surg.
St. Vincent's Hospital ★	Portland, Ore.	Int. Med., Obst., Path., Rad., Surg., Urol.
Shriners Hospital for Crippled Children	Portland, Ore.	Ortho. Surg.
University of Oregon Medical School Hospitals and Clinics ★	Portland, Ore.	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Veterans Admin. Hospital	Portland, Ore.	Int. Med., Ortho. Surg., Otol., Phys. Med., Rad., Surg., Urol.
Oregon State Hospital	Salem, Ore.	Psych.
Abington Memorial Hospital ★	Abington, Pa.	Int. Med., Ob.-Gyn., Path., Ped., Psych., Rad., Surg.
Allentown Hospital ★	Allentown, Pa.	Int. Med., Ob.-Gyn., Path., Plas. Surg., Proct., Rad., Surg., Urol.
Sacred Heart Hospital ★	Allentown, Pa.	Int. Med., Path., Rad., Surg.
St. Luke's Hospital ★	Bethlehem, Pa.	Gen'l Pract., Ob.-Gyn., Path., Surg.
Bradford Hospital	Bradford, Pa.	Gen'l Pract., Surg.
Bryn Mawr Hospital ★	Bryn Mawr, Pa.	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Chester Hospital ★	Chester, Pa.	Gen'l Pract., Path.
Veterans Admin. Hospital	Coatesville, Pa.	Psych.
Danville State Hospital	Danville, Pa.	Psych.
George F. Geisinger Memorial Hospital ★	Danville, Pa.	Anes., Gen'l Pract., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Urol.
Fitzgerald-Mercy Hospital ★	Darby, Pa.	Gen'l Pract., Ob.-Gyn., Path., Rad.
Eagleville Sanatorium for Consumptives	Eagleville, Pa.	Pul. Dis.
Easton Hospital ★	Easton, Pa.	Int. Med., Surg.
State Hospital for Crippled Children	Elizabethtown, Pa.	Ortho. Surg.
Embreeville State Hospital	Embreeville, Pa.	Psych.
Hamot Hospital ★	Erie, Pa.	Int. Med., Ortho. Surg., Path., Surg.
St. Vincent's Hospital ★	Erie, Pa.	Path., Rad., Surg., Urol.
Westmoreland Hospital ★	Greensburg, Pa.	Int. Med.
Pennsylvania State Sanatorium for Tuberculosis	Hamburg, Pa.	Pul. Dis.
Harrisburg Hospital ★	Harrisburg, Pa.	Int. Med., Ob.-Gyn., Surg.
Harrisburg Polyclinic Hospital ★	Harrisburg, Pa.	Int. Med., Path., Ped., Surg.
Harrisburg State Hospital	Harrisburg, Pa.	Psych.
Hazleton State Hospital	Hazleton, Pa.	Surg.
Lancaster General Hospital ★	Lancaster, Pa.	Path.
St. Joseph's Hospital ★	Lancaster, Pa.	Gen'l Pract., Path., Surg.
Norristown State Hospital	*Norristown, Pa.*	*Psych.*
Sacred Heart Hospital ★	Norristown, Pa.	Gen'l Pract.
Albert Einstein Medical Center		
Northern Division ★	Philadelphia	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Southern Division ★	*Philadelphia*	*Anes., Int. Med., Ob.-Gyn., Path., Ped., Psych., Rad., Surg.*
American Oncologic Hospital	Philadelphia	Mal. Dis., Rad.
Chestnut Hill Hospital ★	Philadelphia	Ob.-Gyn., Rad.
Children's Hospital	Philadelphia	Ortho. Surg., Ped., Surg.
Doctors Hospital	Philadelphia	Surg.
Episcopal Hospital ★	Philadelphia	Int. Med., Ob.-Gyn., Path., Rad., Surg., Thor. Surg., Urol.
Frankford Hospital ★	Philadelphia	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Friends Hospital	Philadelphia	Psych.
Germantown Dispensary and Hospital ★	Philadelphia	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Graduate Hospital of the University of Pennsylvania ★	Philadelphia	Anes., Card. Dis., Derm. Syph., Gastro., Gyn., Int. Med., Neur., Neuro. Surg., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Urol.
Hahnemann Medical College and Hospital ★	Philadelphia	Anes., Derm. Syph., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Hospital of the University of Pennsylvania ★	Philadelphia	Anes., Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Hospital of the *Women's College of Pennsylvania* ★	*Philadelphia*	*Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.*
Institute of the Pennsylvania Hospital	Philadelphia	Psych.
Jeanes Hospital	Philadelphia	Mal. Dis., Rad.
Jefferson Medical College Hospital ★	Philadelphia	Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Urol.
Lankenau Hospital ★	Philadelphia	Int. Med., Obst., Path., Surg., Urol.
Methodist Episcopal Hospital ★	Philadelphia	Int. Med., Ob.-Gyn., Surg.
Nazareth Hospital ★	Philadelphia	Rad.
Pennsylvania Hospital ★	Philadelphia	Anes., Card. Dis., Derm. Syph., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg., Urol.
Pennsylvania Hospital-Department for Mental and Nervous Diseases	Philadelphia	Psych.
Philadelphia General Hospital ★	*Philadelphia*	*Anes., Card. Dis., Derm. Syph., Int. Med., Neur., Ob.-Gyn., Ophth.,* Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Rad., Surg., Thor. Surg., Urol.
Philadelphia General Hospital–Northern Division	Philadelphia	Con. Dis., Obst.
Philadelphia Psychiatric Hospital	Philadelphia	Psych.
Philadelphia State Hospital	Philadelphia	Psych.
Presbyterian Hospital ★	Philadelphia	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg., Urol.
St. Christopher's Hospital for Children	Philadelphia	Ped.
St. Joseph's Hospital ★	Philadelphia	Surg.
St. Luke's and Children's Medical Center	Philadelphia	Ped.
St. Mary's Hospital★	Philadelphia	Surg.
Shriners Hospital for Crippled Children	Philadelphia	Ortho. Surg.
Skin and Cancer Hospital	*Philadelphia*	*Derm. Syph.*
Temple University Hospital ★	Philadelphia	Allergy, Anes., Card. Dis., Gastro., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Proct., Psych., Rad., Surg., Urol.
U. S. Naval Hospital ★	Philadelphia	Derm. Syph., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Philadelphia	Derm. Syph., Int. Med., Ortho. Surg., Path., Phys. Med., Psych., Rad., Surg., Urol.
Wills *Eye Hospital*	Philadelphia	Ophth.

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Name of Hospital	Location	Approved Residencies
Woman's Hospital ★	Philadelphia	Int. Med., Ob.-Gyn., Surg.
Valley Forge Army Hospital ★	Phoenixville, Pa.	Int. Med., Surg.
Allegheny General Hospital ★	Pittsburgh	Anes., Int. Med., Ortho. Surg., Path., Ped., Rad., Surg.
Children's Hospital	Pittsburgh	Ortho. Surg., Path., Ped., Surg.
Elizabeth Steel Magee Hospital	Pittsburgh	Int. Med., Ob.-Gyn.
Eye and Ear Hospital	Pittsburgh	Ophth., Otol.
Mercy Hospital ★	Pittsburgh	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Otol., Path., Rad., Surg., Urol.
Montefiore Hospital ★	Pittsburgh	Allergy, Anes., Int. Med., Obst., Ophth., Path., Rad., Surg.
Pittsburgh Hospital ★	Pittsburgh	Int. Med., Ob.-Gyn., Surg.
Pittsburgh Medical Center	Pittsburgh	Neuro. Surg., Rad., Urol.
Presbyterian Hospital ★	Pittsburgh	Card. Dis., Int. Med., Neuro. Surg., Ortho. Surg., Path., Plas. Surg., Proct., Surg., Urol.
St. Francis General Hospital and Rehabilitation Institute ★	Pittsburgh	Anes., Card. Dis., Int. Med., Neur., Ob.-Gyn., Ortho. Surg., Path., Psych., Rad., Surg.
St. John's General Hospital ★	Pittsburgh	Gen'l Pract.
St. Margaret Memorial Hospital ★	Pittsburgh	Int. Med., Ob.-Gyn., Path.
Shadyside Hospital ★	Pittsburgh	Path.
South Side Hospital ★	Pittsburgh	Ob.-Gyn., Path.
Tuberculosis League Hospital	Pittsburgh	Pul. Dis.
Veterans Admin. Hospital	Pittsburgh	Allergy, Int. Med., Neur., Ophth., Otol., Path., Phys. Med., Rad., Surg., Urol.
Western Pennsylvania Hospital ★	Pittsburgh	Int. Med., Obst., Path., Ped., Rad., Surg.
Western State Psychiatric Institute and Clinic	Pittsburgh	Psych.
Community General Hospital ★	Reading, Pa.	Gen'l Pract., Path.
Reading Hospital ★	Reading, Pa.	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg.
St. Joseph's Hospital ★	Reading, Pa.	Int. Med., Path., Rad., Surg.
Robert Packer Hospital ★	Sayre, Pa.	Anes., Int. Med., Neuro. Surg., Ophth., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Scranton State Hospital ★	Scranton, Pa.	Int. Med., Path.
Sharon General Hospital ★	Sharon, Pa.	Gen'l Pract., Rad.
Mont Alto State Sanatorium (Pennsylvania State Sanatorium No. 1)	South Mountain, Pa.	Pul. Dis.
Warren State Hospital	Warren, Pa.	Psych.
Chester County Hospital ★	West Chester, Pa.	Rad.
Mercy Hospital ★	Wilkes-Barre, Pa.	Surg., Urol.
Wilkes-Barre General Hospital ★	Wilkes-Barre, Pa.	Int. Med., Path., Urol.
Columbia Hospital ★	Wilkinsburg, Pa.	Surg.
Williamsport Hospital ★	Williamsport, Pa.	Path., Surg.
Woodville State Hospital	Woodville, Pa.	Psych.
York Hospital ★	York, Pa.	Int. Med., Path., Surg.
State Hospital for Mental Diseases	Howard, R. I.	Psych.
Memorial Hospital ★	Pawtucket, R. I.	Gen'l Pract.
Charles V. Chapin Hospital	Providence, R. I.	Ped., Psych.
Miriam Hospital ★	Providence, R. I.	Anes.
Providence Lying-In Hospital	Providence, R. I.	Obst.
Rhode Island Hospital ★	Providence, R. I.	Anes., Card. Dis., Int. Med., Gyn., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Urol.
Roger Williams General Hospital ★	Providence, R. I.	Rad.
Veterans Admin. Hospital	Providence, R. I.	Int. Med., Surg.
Emma Pendleton Bradley Home	Riverside, R. I.	Psych.
Roper Hospital ★	Charleston, S. C.	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Urol.
Columbia Hospital ★	Columbia, S. C.	Ob.-Gyn., Ortho. Surg., Ped., Rad., Surg.
Veterans Admin. Hospital	Columbia, S. C.	Int. Med., Ortho. Surg., Surg.
McLeod Infirmary ★	Florence, S. C.	Ob.-Gyn.
Greenville General Hospital ★	Greenville, S. C.	Gen'l Pract., Ob.-Gyn., Ortho. Surg., Path.
Shriners Hospital for Crippled Children	Greenville, S. C.	Ortho. Surg.
Orangeburg Regional Hospital ★	Orangeburg, S. C.	Urol.
Spartanburg General Hospital ★	Spartanburg, S C.	Gen'l Pract., Rad.
Sacred Heart Hospital ★	Yankton, S. Dak.	Gen'l Pract., Surg.
Baroness Erlanger Hospital ★	Chattanooga, Tenn.	Anes., Int. Med., Obst., Ortho. Surg., Path., Rad., Surg.
Memorial Hospital	Chattanooga, Tenn.	Int. Med., Ob.-Gyn.
Newell Hospital	Chattanooga, Tenn.	Surg.
T. C. Thompson Children's Hospital	Chattanooga, Tenn.	Ped.
East Tennessee Baptist Hospital ★	Knoxville, Tenn.	Path.
Knoxville General Hospital ★	Knoxville, Tenn.	Ob.-Gyn.
St. Mary's Memorial Hospital ★	Knoxville, Tenn.	Gen'l Pract., Int. Med., Ortho. Surg., Path., Surg.
Madison Rural Hospital and Sanitarium	Madison College, Tenn.	Gen'l Pract.
Baptist Memorial Hospital ★	Memphis, Tenn.	Int. Med., Neuro. Surg., Ob.-Gyn., Path., Rad., Surg., Thor. Surg., Urol.
Campbell Clinic Hospital	Memphis, Tenn.	Ortho. Surg.
Gailor Memorial Psychiatric Hospital	Memphis, Tenn.	Psych.
John Gaston Hospital ★	Memphis, Tenn.	Int. Med., Ob.-Gyn., Ophth., Otol., Path., Ped., Rad., Surg., Urol.
LeBonheur Children's Hospital	Memphis, Tenn.	Ped.
Memphis Eye, Ear, Nose and Throat Hospital	Memphis, Tenn.	Ophth.
Methodist Hospital ★	Memphis, Tenn.	Path., Rad., Surg.
St. Joseph's Hospital ★	Memphis, Tenn.	Int. Med., Ob.-Gyn., Path., Ped., Surg.
Veterans Admin. Hospital	Memphis, Tenn.	Gastro., Int. Med., Neuro. Surg., Ophth., Ortho. Surg., Otol., Path., Phys. Med., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
West Tennessee Tuberculosis Hospital	Memphis, Tenn.	Thor. Surg.
Baptist Hospital ★	Nashville, Tenn.	Int. Med., Ob.-Gyn., Ped., Surg.
George W. Hubbard Hospital of Meharry Medical College ★	Nashville, Tenn.	Int. Med., Obst., Path., Ped., Rad., Surg.
Nashville General Hospital	Nashville, Tenn.	Path., Surg.

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Name of Hospital	Location	Approved Residencies
St. Thomas Hospital ★	Nashville, Tenn.	*Int. Med., Obst., Surg.*
Vanderbilt University Hospital ★	Nashville, Tenn.	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Nashville, Tenn.	Int. Med., Path., Psych., Rad., Surg.
Oak Ridge Institute of Nuclear Studies	Oak Ridge, Tenn.	Int. Med.
Oakville Memorial Sanatorium	Oakville, Tenn.	Pul. Dis.
Brackenridge Hospital ★	Austin, Texas	Ob.-Gyn., Path., Rad., Surg.
Baylor University Hospital ★	Dallas, Texas	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Plas. Surg., Proct., Rad., Surg., Thor. Surg.
Children's Medical Center ★	Dallas, Texas	Ped.
Gaston Hospital	Dallas, Texas	Surg.
Methodist Hospital ★	Dallas, Texas	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Parkland Memorial Hospital ★	Dallas, Texas	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
St. Paul's Hospital ★	Dallas, Texas	Int Med., Ob.-Gyn., Path., Ped., Rad.
Texas Scottish Rite Hospital for Crippled Children	Dallas, Texas	Ortho. Surg.
Timberlawn Sanitarium	Dallas, Texas	Psych.
Veterans Admin. Hospital ★	Dallas, Texas	Int. Med., Ophth., Otol., Path., Rad., Surg., Urol.
Woodlawn Hospital	Dallas, Texas	Pul. Dis.
Hotel Dieu, Sisters Hospital ★	El Paso, Texas	Ob.-Gyn.
William Beaumont Army Hospital ★	El Paso, Texas	Surg.
All Saints Hospital	Fort Worth, Texas	Gen'l Pract.
Harris Hospital ★	Fort Worth, Texas	Int. Med., Ob.-Gyn., Path., Surg.
John Peter Smith Hospital ★	Fort Worth, Texas	Gen'l Pract.
St. Mary's Hospital	Galveston, Texas	Gen'l Pract.
University of Texas Medical Branch Hospitals ★	Galveston, Texas	Anes., Card. Dis., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Psych., Rad., Surg., Thor. Surg., Urol.
Gonzales Warm Springs Foundation for Crippled Children	Gonzales, Texas	Phys. Med.
Hermann Hospital ★	Houston, Texas	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Jefferson Davis Hospital ★	Houston, Texas	Derm. Syph., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Rad., Surg., Urol.
Methodist Hospital ★	Houston, Texas	Int. Med., Neuro. Surg., Ob.-Gyn., Path., Rad., Surg.
St. Joseph's Hospital ★	Houston, Texas	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Southern Pacific Hospital	Houston, Texas	Surg.
University of Texas M. D. Anderson Hospital for Cancer Research	Houston, Texas	Gyn., Int. Med., Mal. Dis., Path., Rad., Surg.
Veterans Admin. Hospital ★	Houston, Texas	Int. Med., Neur., Neuro. Surg., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Pul. Dis., Rad., Surg., Urol.
Nan Travis Memorial Hospital	Jacksonville, Texas	Gen'l Pract.
Veterans Admin. Hospital ★	McKinney, Texas	Anes., Int. Med., Ophth., Otol., Ortho. Surg., Path., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Shannon West Texas Memorial Hospital	San Angelo, Texas	Anes., Gen'l Pract.
Baptist Memorial Hospital ★	San Antonio, Texas	Anes., Gen'l Pract., Ob.-Gyn., Path., Rad., Surg.
Brooke Army Hospital ★	San Antonio, Texas	Anes., Card. Dis., Derm. Syph., Gastro., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Plas. Surg., Rad., Surg., Urol.
Robert B. Green Memorial Hospital ★	San Antonio, Texas	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Santa Rosa Hospital ★	San Antonio, Texas	Int. Med., Path., Ped., Rad.
U. S. Air Force Hospital	San Antonio, Texas	Anes., Ortho. Surg., Surg.
Kings Daughters Hospital ★	Temple, Texas	Gen'l Pract.
Scott and White Memorial Hospital ★	Temple, Texas	Anes., Int. Med., Ophth., Ortho. Surg., Rad.
Veterans Admin. Hospital	Waco, Texas	Psych.
U. S. Air Force Hospital	Wichita Falls, Texas	Surg.
Wichita General Hospital	Wichita Falls, Texas	Gen'l Pract.
St. Benedict's Hospital ★	Ogden, Utah	Path.
Thomas D. Dee Memorial Hospital ★	Ogden, Utah	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Surg.
Dr. W. H. Groves Latter-Day Saints Hospital ★	Salt Lake City	Int. Med., Ob.-Gyn., Path., Rad., Surg., Thor. Surg.
Holy Cross Hospital ★	Salt Lake City	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Primary Children's Hospital	Salt Lake City	Ortho. Surg.
St. Mark's Hospital ★	Salt Lake City	Rad., Surg.
Salt Lake County General Hospital ★	Salt Lake City	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Psych., Rad., Surg.
Shriners Hospital for Crippled Children	Salt Lake City	Ortho. Surg.
Veterans Admin. Hospital ★	Salt Lake City	Int. Med., Neur., Ortho. Surg., Path., Psych., Rad., Surg.
Brattleboro Retreat	Brattleboro, Vt.	Psych.
Bishop DeGoesbriand Hospital ★	Burlington, Vt.	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Mary Fletcher Hospital ★	Burlington, Vt.	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Vermont State Hospital	Waterbury, Vt.	Psych.
Veterans Admin. Hospital	White River Junction, Vt.	Anes., Int. Med., Neuro. Surg., Path., Plas. Surg., Rad., Surg., Urol.
Alexandria Hospital ★	Alexandria, Va.	Int. Med., Ob.-Gyn., Surg.
Arlington Hospital	Arlington, Va.	Ob.-Gyn.
Blue Ridge Sanatorium	Charlottesville, Va.	Pul. Dis.
University of Virginia Hospital ★	Charlottesville, Va.	Allergy, Derm. Syph., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Thor. Surg., Urol.
Chesapeake & Ohio Railway Employees Hospital ★	Clifton Forge, Va.	Int. Med., Surg.
Memorial Hospital ★	Danville, Va.	Path.
U. S. Army Hospital	Fort Belvoir, Va.	Surg.
Lynchburg General Hospital ★	Lynchburg, Va.	Obst., Path., Surg.
Riverside Hospital ★	Newport News, Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Path.
De Paul Hospital ★	Norfolk, Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Norfolk General Hospital ★	Norfolk, Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
U. S. Naval Hospital ★	Portsmouth, Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Surg.
Crippled Children's Hospital	Richmond, Va.	Ortho. Surg.
Johnston-Willis Hospital ★	Richmond, Va.	Int. Med., Obst., Surg.
Medical College of Virginia—Hospital Division ★	Richmond, Va.	Allergy, Anes., Derm. Syph., Int. Med., Neuro. Surg., Obst., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
Retreat for the Sick	Richmond, Va.	Gen'l Pract.
St. Elizabeth Hospital	Richmond, Va.	Surg.
Sheltering Arms Hospital	Richmond, Va.	Gen'l Pract.
Veterans Admin. Hospital	Richmond, Va.	Anes., Card. Dis., Gastro., Int. Med., Neur., Neuro. Surg., Ophth., Ortho. Surg., Path., Phys. Med., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Gill Memorial Eye, Ear and Throat Hospital	Roanoke, Va.	Ophth.
Jefferson Hospital ★	Roanoke, Va.	Int. Med., Surg.
Lewis-Gale Hospital ★	Roanoke, Va.	Int. Med., Surg.
Veterans Admin. Hospital	Roanoke, Va.	Psych.
Louise Obici Memorial Hospital ★	Suffolk, Va.	Gen'l Pract.
Eastern State Hospital	Williamsburg, Va.	Psych.
Madigan Army Hospital ★	Fort Lewis, Wash.	Int. Med., Surg.
Western State Hospital	Fort Steilacoom, Wash.	Psych.
Children's Orthopedic Hospital	Seattle	Ortho. Surg., Ped., Surg.
Doctors Hospital ★	Seattle	Anes., Int. Med., Ob.-Gyn., Path., Surg.
Firland Sanatorium	Seattle	Pul. Dis., Thor. Surg.
King County Hospital Unit No. 1 (Harborview) ★	Seattle	Anes., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Surg., Urol.
Pinel Foundation	Seattle	Psych.
Providence Hospital ★	Seattle	Gen'l Pract., Int. Med., Obst., Ortho. Surg., Path., Rad., Surg.
Swedish Hospital ★	Seattle	Int. Med., Ob.-Gyn., Path., Rad., Surg.
U. S. Public Health Service Hospital ★	Seattle	Int. Med., Ophth., Path., Surg.
Veterans Admin. Hospital ★	Seattle	Int. Med., Path., Psych., Surg.
Virginia Mason Hospital ★	Seattle	Anes., Int. Med., Obst., Rad., Surg.
Central Washington Tuberculosis Hospital	Selah, Wash.	Pul. Dis.
Deaconess Hospital ★	Spokane, Wash.	Path.
Sacred Heart Hospital ★	Spokane, Wash.	Gen'l Pract., Ob.-Gyn., Rad.
St. Luke's Hospital ★	Spokane, Wash.	Ob.-Gyn., Path., Surg.
Shriners Hospital for Crippled Children	Spokane, Wash.	Ortho. Surg.
St. Joseph Hospital ★	Tacoma, Wash.	Path.
Tacoma General Hospital ★	Tacoma, Wash.	Anes., Path.
Beckley Hospital	Beckley, W. Va.	Surg.
Bluefield Sanitarium	Bluefield, W. Va.	Gen'l Pract.
Charleston General Hospital ★	Charleston, W. Va.	Gen'l Pract., Int. Med., Path., Surg.
Kanawha Valley Hospital ★	Charleston, W. Va.	Gen'l Pract.
Memorial Hospital ★	Charleston, W. Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Ped., Surg.
St. Mary's Hospital	Clarksburg, W. Va.	Path.
Chesapeake & Ohio Hospital	Huntington, W. Va.	Int. Med., Surg.
St. Mary's Hospital ★	Huntington, W. Va.	Path., Rad., Surg.
Veterans Admin. Hospital	Martinsburg, W. Va.	Int. Med., Path., Rad., Surg.
Laird Memorial Hospital	Montgomery, W. Va.	Surg.
Camden-Clark Memorial Hospital ★	Parkersburg, W. Va.	Gen'l Pract.
Broaddus Hospital	Philippi, W. Va.	Surg.
Ohio Valley General Hospital ★	Wheeling, W. Va.	Anes., Gen'l Pract., Int. Med., Path., Surg.
Mercy Hospital ★	Janesville, Wis.	Surg.
La Crosse Lutheran Hospital ★	La Crosse, Wis.	Int. Med., Surg., Urol.
Madison General Hospital ★	Madison, Wis.	Int. Med., Path., Rad., Surg., Urol.
Methodist Hospital ★	Madison, Wis.	Rad., Surg.
St. Mary's Hospital ★	Madison, Wis.	Int. Med.
University Hospitals ★	Madison, Wis.	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Madison, Wis.	Pul. Dis.
St. Joseph's Hospital ★	Marshfield, Wis.	Int. Med.
Columbia Hospital ★	Milwaukee	Int. Med., Obst., Ortho. Surg., Path., Rad., Surg.
Evangelical Deaconess Hospital ★	Milwaukee	Gen'l Pract., Rad., Surg.
Milwaukee Children's Hospital ★	Milwaukee	Ortho. Surg., Ped., Surg.
Milwaukee County Hospital ★	Milwaukee	Int. Med., Ob.-Gyn., Ophth., Path., Ped., Proct., Rad., Surg., Urol.
Milwaukee County Hospital for Mental Diseases	Milwaukee	Psych.
Milwaukee Hospital ★	Milwaukee	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Mount Sinai Hospital ★	Milwaukee	Int. Med., Ob.-Gyn.
Muirdale Sanatorium	Milwaukee	Pul. Dis.
St. Joseph's Hospital ★	Milwaukee	Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Luke's Hospital ★	Milwaukee	Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Mary's Hospital ★	Milwaukee	Ob.-Gyn., Path.
St. Michael's Hospital ★	Milwaukee	Gen'l Pract.
Veterans Admin. Hospital	Milwaukee (Wood)	Anes., Derm. Syph., Gastro., Int. Med., Ophth., Ortho. Surg., Otol., Path., Phys. Med., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Wisconsin State Sanatorium	Statesan, Wis.	Pul. Dis.
Milwaukee Sanatorium	Wauwatosa, Wis.	Psych.
Gorgas Hospital ★	Ancon, C. Z.	Int. Med., Ob.-Gyn., Ophth., Path., Rad., Surg.
Kapiolani Maternity and Gynecological Hospital	Honolulu, T. H.	Ob.-Gyn.
Kauikeolani Children's Hospital	Honolulu, T. H.	Ped.
Leahi Hospital	Honolulu, T. H.	Pul. Dis., Thor. Surg.
Queen's Hospital ★	Honolulu, T. H.	Int. Med., Ob.-Gyn., Path., Psych., Rad., Surg.
St. Francis Hospital ★	Honolulu, T. H.	Ob.-Gyn.
Shriners Hospital for Crippled Children	Honolulu, T. H.	Ortho. Surg.
Tripler Army Hospital ★	Honolulu, T. H.	Int. Med., Ob.-Gyn., Rad., Surg., Urol.
Territorial Hospital	Kanoehe, Oahu, T. H.	Psych.
Bayamon District Hospital ★	Bayamon, P. R.	Int. Med., Ob.-Gyn., Path., Ped., Surg.
San Juan City Hospital ★	San Juan, P. R.	Anes., Int. Med., Ob.-Gyn., Ophth., Path., Ped., Rad., Surg., Urol.
Veterans Admin. Hospital	San Juan, P. R.	Int. Med., Rad., Surg.

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ANNUAL REPORT ON INTERNSHIPS AND RESIDENCIES

The Council on Medical Education and Hospitals presents in this issue its 29th Annual Report on Internships and Residencies. The report is factual in nature and presents statistical data on the number of internships and residencies in hospitals throughout the country, as well as general information on committees active in the field of graduate education, on the National Intern Matching Program, and on other related subjects. The report is based on data supplied by 1,364 hospitals in the United States and its possessions in which approved training at the graduate level is being conducted. Some of the statistics presented are of particular interest, reflecting the extent to which graduate education has developed in this country. One such statistic is the total number of physicians serving as house staff members; there were, according to the report, 9,066 graduates serving internships as of September 1, 1954, and 20,494 serving as residents, or a total of 29,560. When one considers that this figure exceeds the number of students enrolled last year in all our medical schools, one can appreciate more clearly the magnitude of the growth of graduate training over the past 10 years. In terms of persons involved and of time spent, the graduate phase of medical education has now come to occupy a place comparable to that at the undergraduate level.

The percentages of positions filled last year increased for both internships and residencies. While the increase was small, 4% for internships and 1% for residencies, it did reverse the downward trend of the past several years. The report points out that the increase was due, in large part, to the greater number of graduates of foreign medical schools serving in approved hospitals. While their presence alleviates to some extent the demand for house staff appointees, it is apparent that in partially solving one problem on this basis, others have been created. The report notes that a Cooperating Committee on Evaluation of Graduates of Foreign Medical Schools has been established to consider these problems as they affect standards of medical education. The Council and the agencies with which it cooperates, as well as the medical staffs and administrative heads of the hospitals contributing to this annual report, are to be commended for making available to the profession and others interested in medical education, this comprehensive compilation of information on a phase of medical education that continues to grow in importance.

"FULL TRAINING" REQUIREMENT FOR RESIDENCY APPROVAL

In this issue (page 382) there are several announcements made regarding future policy relative to approval of residency training in four specialties. In all of these announcements, the same principle is applicable; i. e., hospitals, to qualify for continued approval, are required to provide "full training" in the specialty, either independently or in collaboration with other hospitals through integration of their programs. In considering this development, the history of the residency approval program, particularly during the past 10 years, is pertinent. Prior to 1945, there were about 5,000 residency positions available in approved hospitals throughout the country. This figure included appointments at all levels—first, second, and third year positions. In the immediate postwar period there was a tremendous demand for residency training, particularly from medical officers being released from military service. Hospitals that had been conducting residency training expanded their programs to take in additional residents, and many hospitals that had not previously attempted to train residents were encouraged to initiate such programs. As a result, the number of residencies increased at an unprecedented rate until now there are roughly five times as many residency positions available as there were 10 years ago.

In retrospect, the soundness of the overexpansion of training facilities can be questioned. At the time, however, the policy of encouraging the development of new programs and the enlargement of those already in existence was justifiable. Had this marked inflation of the residency system not taken place, a large number of applicants would have been denied additional training and would, perforce, have had to return to practice without the opportunity to enhance their professional knowledge and background in the field of their choice. There are those who take the position that many of the hospitals that entered the field of residency training during those years were not in a position to provide the type of training considered optimal. With this generality, one cannot perhaps quarrel. One may raise the question, however, as to whether the public interest was not better served under a program in which the maximum number of physicians received additional training in preparation for civilian practice than under a more restrictive policy through which a relatively limited number of physicians would have had the opportunity for a more intensive and perhaps higher quality of residency training.

In any event, a number of residencies were approved during the past 10 years for periods of training varying from one to four years. Under policies that have been applicable in the past, a resident could take his training in two or three such separate programs and qualify for board examination in the specialty. A not too inaccurate analogy would be one in which a medical student would be able to qualify for his doctorate degree through having completed four successive years at the freshman level in four different medical schools. To obviate this possibility, and to assure that residents finish their training with some degree of continuity of supervision and of increasing, graded responsibility, a number of the committees responsible for evaluating and approving residency programs have adopted the policy that hospitals offering residencies in these specialties should provide full training for their residents either by developing independently a complete training program or by integrating their residency with one or more other hospitals that by combining their resources can provide full training in the specialty. The validity of this policy from an educational standpoint is difficult to refute. It will, of course, result in some hospitals having to discontinue their programs unless they can meet the requirement for complete training. In the interest of improving the standards of graduate medical education, however, and of the residents themselves, the policy as adopted by the residency review committee is eminently sound.

"ANNUAL" APPROVAL FOR RESIDENCY TRAINING

The number of hospitals approved for residency training has remained relatively constant for the past few years. There have been of course, some changes in the status of these institutions as new programs are approved and others are dropped from the list of recognized services. In the latter instance, there is quite apt to be a fairly strong reaction on the part of the medical staff and administration of the hospital concerned. One of the reasons for the protests that occasionally result when approval is terminated is the misconception that once approval is granted it is more or less permanent. In effect, approval of a residency program is granted on an annual basis through inclusion in the list of services that appears in the Internship and Residency issue of The Journal. Approval of a program is continued automatically until there is a change in the service such as the appointment of a new department head or until such time as the program is resurveyed. These surveys are made every two to three years and the findings referred to the appropriate reviewing committee. Their evaluation of the program is based on the report of inspection as developed by the staff representative of the Council and on the data submitted by the hospital. Continued approval is considered warranted only when it is evident that standards for training are being met. Approval is not continued, however, simply on the basis that the residency had been approved in the past.

A residency program should be constantly reappraised by the medical staff itself, if only to assure that the program's objectives are being met. Unless such periodic self-evaluations are made, it is quite likely that the program will deteriorate and on survey will be found to have deficiencies that may be considered serious enough to result in withdrawal of recognition. A fairly reliable, if somewhat homely guide in evaluating the adequacy of a program, is whether it is a service that one could recommend unqualifiedly to someone seeking one's best advice. If so, there need be little concern over continued approval of the program. If not, there is need for corrective action that might well be taken as a preventive measure prior to, rather than after, the evaluation of the approving committee. As in medicine, the ounce of prevention may well be worth the pound of cure.

BOSTON CLINICAL MEETING

The Clinical Meeting of the American Medical Association to be held in Boston, November 29 to December 2, 1955, marks the ninth assembly of this winter feature. Since its inauguration in Cleveland in January, 1948, the clinical meeting has developed a distinctive pattern and has become an outstanding contribution to graduate medical education. Predictions for the Boston meeting indicate one of the largest clinical meetings on record. The program will soon be ready for publication. Lectures and round-table discussions, arranged by the local committee in Boston and covering all phases of medicine, will be conducted in three lecture halls simultaneously and continuously, thus giving the visiting physician a varied group of subjects from which to choose. Color television, originating at New England Deaconess Hospital, will bring the operating room into the lecture hall. The local committee is arranging an outstanding program of both medical and surgical subjects. A carefully selected list of motion pictures, in some cases supplementing other features of the program, will be shown continuously, with many of the authors present to discuss their films. The Scientific Exhibit will be as attractive as ever, with outstanding authorities continuously available to answer questions and discuss problems with other physicians. Special mention should be made of the fracture exhibit and the manikin demonstrations on problems of delivery where experts will be available for consultation. The Technical Exposition, where all leading medical supply houses will be represented, will show visitors what is new in equipment, books, and pharmaceuticals. All scientific activities will be held in the Mechanics Building. This historic structure will fit the purposes of the meeting comfortably. The House of Delegates will be meeting meanwhile in the Statler Hotel. Boston is always interesting to visit, having many historic and modern attractions. Lexington and Concord are nearby. The program of this meeting, built against an absorbing background of medical history, will make the 1955 clinical meeting doubly worth while.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

I am often told that the younger practitioners are more or less responsible for much of the dissatisfaction that exists in the minds of the public concerning medical fees. I also have heard many people say that the older physicians are more understanding when it comes to charges for medical services but that many of the younger men aspire too rapidly for financial success and security for themselves and their families. However, I am satisfied that the over-all attitude of the younger men is substantially good and that most of them only wish to be received and treated fairly in the communities where they have elected to settle and practice. It must be remembered that the average young physician has little chance to earn a living until his late 20's and early 30's. Let us for a moment look at his education and its cost. The average boy graduates from high school at about 18 years of age. The cost of four years of college and medical school is about $6,000 just for his education. This does not include his room and board nor his loss of earnings during this period of eight years. This alone would amount to approximately $24,000 for the period. The total cost then for an M.D. is approximately $38,000. Then at least one year's internship is necessary. Here for the first time he may receive a small remuneration. According to conservative estimates then the current cost of becoming a physician starting practice at age 30 is at least $52,000, and the physician will need $7,000 of gross fees every year for 35 years to amortize his investment. During the process of their academic education many of these young men acquire wives and one or more children, all of which add to their need for making a living as well as practicing a legitimate profession.

It is a difficult thing for me, after traveling the length and breadth of this grand country of ours, meeting actually thousands of these younger practitioners, to believe that their sole interest is money and that they have little or no regard for the financial and economic problems of their patients. However, there is another problem concerning these younger men that does disturb me a great deal. Let us now carry one of these younger men through a residency training program where he is fitting himself for a speciality. Here the problem becomes greatly complicated and much more difficult. After an internship the youthful physician, the wife and children in many instances, accepts a three or five year approved residency in one of the specialities. He may receive a small salary, but it is seldom sufficient. Certainly he does not in any sense earn enough to cover his expenses. Some speciality boards make him practice his speciality for a minimum of two years after completion of his residency. Attached to this obligation to make him eligible for his examinations is the penalty of forfeiting his right to take his boards if he practices anything but the specific speciality for which he has trained. In other words, he cannot, if preparing for his surgical boards, treat medical cases. If the young surgeon can associate himself with an older, well-established surgeon, his road to the examinations is relatively easy, but, if he elects solo practice, his road is hard and thorny unless he is personally well off financially. He finds that while he is excellently trained, patients of other established physicians are not going to rush to him for surgery. They look upon him as inexperienced, and he has a difficult time in getting established.

Since economic factors are very important, and the small family is hungry and no work shows up, he finds himself beset with many problems. The most important is—"Can I remain ethical and stick it out?" Of course I say he can, but some men so harassed are sorely tempted. The problem is simply an economic one. Fee splitting and other obnoxious procedures may become a great temptation. Strong must be the character of the specialist if he is to resist temptation. I am convinced that the majority of these men are of strong character. It takes at least two to make a bargain. There are many economic urges that could make the deal seem justifiable, but once the deal is made the die is cast for the future. I sometimes think that our specialty boards are too severe when they do not permit the young specialist to treat any patients except those that fall into his special field during these first trying years of practice. It is my opinion that a specialist is first a physician, and I am sure that, with the present demand for good physicians, these young specialists will be able to brave the economic storm and come up unscathed. Doctors have faced difficulties before and overcome them. They can do it again.

Youthful physician, youthful specialist, the future of medicine is in your hands. We believe in you.

Elmer Hess, M.D.,
Erie, Pa.

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

First Session, 84th Congress

Disability Insurance for Employees in District of Columbia

Senators Case (R., N. J.), and Ives (R., N. Y.) have introduced S. 2753, the administration's proposal to establish a mandatory system of cash payments for temporary disability of workers in the District of Columbia. Disability is defined as "the inability of an individual as a result of his physical or mental illness, disease, or injury to perform his most recent, customary, or reasonably similar work," and would not be necessarily due to his employment. The benefits would be half of the individual's average wage, with a maximum of $36 and a minimum of $12, and could not be collected for more than 26 weeks within a 52 week period. The benefits would be financed by a payroll tax. The employee's contribution could not exceed 0.5% of his earning, or 30 cents per week, whichever is the lesser. Employers could use an insurance program or contract with an employee union or corporation for coverage. If the payroll is less than $20,000 annually the employers could use a special District of Columbia insurance fund for coverage. This bill was referred to the Committee on the District of Columbia.

Dependent Medical Care for the Military

Congressman Price (D., Ill.) by request has introduced a measure designed to set up a voluntary health insurance program for military dependents, with nonprofit plans (Blue Cross) to be used in every case where such service is available. The federal government would bear the full cost of the premium, and no charge could be made for costs in military facilities except for subsistence. This measure was referred to the Committee on Armed Services.

Hospital Reading Matter

Congresswoman Green (D., Ore.) proposes, in H. R. 7841, to authorize the Post Office Department to give "unclaimed or undeliverable books, newspapers, magazines, and other publications" to hospitals, asylums, or reformatory institutions. Delivery would be effected without cost to the United States. This bill was referred to Committee on Post Office and Civil Service.

Surplus Property for Hospitals, Clinics, and Health Centers

Congressman Ellsworth (R., Ore.), in H. R. 7425, would authorize donations from the general services of surplus property found usable and necessary for educational or Public Health purposes, including research, to nonprofit and tax-supported medical institutions, hospitals, clinics, health centers, and colleges. This measure was referred to the Committee on Government Operations.

Services to Aging

Senator Wiley (R., Wis.), in S. 2279, would authorize grants to states for planning and programs for services to the aging. This measure would authorize 2 million dollars for planning grants and 10 million dollars the next year for programs and such sums thereafter for three years as Congress desires. The program would be under the supervision of the Secretary of Health, Education, and Welfare, and would be administered in each state by a single agency. This bill was referred to the Committee on Finance.

Federal Scholarship Act

Congressman Multer (D., N. Y.), in H. R. 7846, would authorize loans to enable needy and scholastically qualified students to continue education after high school, including premedical. A federal trust fund would be established with 4 million dollars the first year and 10 million dollars the second. The program would be administered by the Commissioner of Education, who would select the students certified to him by the state agency. The state contribution would vary from 5% to 10% of the amount of the scholarships. This measure was referred to the Committee on Education and Labor.

Prepared by the Washington Office of the American Medical Association.

NEW TELEVISION AIDS

Two new television "scripts-with-film" programs featuring health education information on the eye and its functions will be released this fall by the A. M. A. Prepared with the cooperation of the A. M. A.'s Bureau of Health Education and the National Society for the Prevention of Blindness, these shows are designed so that a local physician can narrate while the film is thrown on the television screen. The programs are: (1) "A Clear Picture"—which deals with the eye and its functions and includes an animated sequence employing a fresh orange, a glass lens, and a piece of lipstick to show the structure of the eye; and (2) "Wonderful Spectacle"—which describes the functions of glasses and lenses. The programs are so constructed that they can be used as separate 15 minute programs or together as a single 30 minute presentation. The film demonstrator is Dr. Brittain F. Payne of New York City, an ophthalmologist. Films and accompanying scripts will be available about Sept. 15 through the A. M. A. TV Film Library. There is no charge to medical societies.

QUARTERLY CUMULATIVE INDEX MEDICUS

Volume 53 (Jan.-June 1953) of the Quarterly Cumulative Index Medicus is now available. Orders for copies should be addressed to the Order Department, 535 N. Dearborn St., Chicago 10, Ill.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

POLICY RELATING TO APPROVAL OF RESIDENCY PROGRAMS

The Council on Medical Education and Hospitals wishes to make the following policy announcements relating to approval of residency programs. The statement on basic sciences in an approved surgical residency has been adopted by the Conference Committee on Graduate Training in Surgery, representing the Council, the American Board of Surgery and the American College of Surgeons. Statements regarding the discontinuance of approval for "partial" training in a number of the specialties have been adopted by the Residency Review committees for the specialties concerned. These committees represent the Council and the respective examining boards in approving residency programs. A similar announcement relating to residency programs in pediatrics appeared in the April 10, 1954, issue of THE JOURNAL (page 1303). Approval for residency training in anesthesiology, general surgery, otolaryngology, and plastic surgery, as well as in medical subspecialties, allergy, cardiovascular diseases, gastroenterology, and pulmonary diseases, has for some time been limited to hospitals offering full training, either independently or in collaboration with other hospitals.

STATEMENT ON BASIC SCIENCES IN AN APPROVED SURGICAL RESIDENCY

A fundamental concept of an approved residency in general surgery requires that the program provide for properly organized, integrated and progressively graded clinical training in the specialty. The Conference Committee on Graduate Training in Surgery interprets this concept as requiring a continuity of clinical experience under the supervision of the surgical staff of the hospital or hospitals in which such training is conducted. Accordingly, the Conference Committee while recognizing the value of formal courses in the basic sciences, will not accept these courses as part of a three or four year program, in lieu of clinical experience. When provision is made for the resident to attend such courses, they will be accepted by the American Board of Surgery as credit toward the practice requirement, in addition to an approved three year residency. An approved four year residency may include a research project or an assignment to a basic science department such as pathology, provided that this part of the program has been approved by the Conference Committee. The final year of a four year program, however, must be spent in clinical surgery in the parent institution. The above provisions will be considered effective on and after July 1, 1956, for all residencies in general surgery approved by the Conference Committee, representing the American Board of Surgery, the American College of Surgeons, and the Council on Medical Education and Hospitals of the American Medical Association.

RESIDENCY REVIEW COMMITTEE FOR ORTHOPEDIC SURGERY

At a recent meeting of the Residency Review Committee for Orthopedic Surgery, representing the American Board of Orthopedic Surgery and the Council on Medical Education and Hospitals, the Committee reviewed its policy relative to the approval of training programs of less than three years' duration, i. e., programs offering training in one or more but not all aspects of the specialty. It was the considered opinion of the Committee that hospitals should provide for an opportunity for full training, either intramurally or through affiliation in order to assure fully integrated educational experience with continuity of supervision of the resident staff. Accordingly, the Committee will have serious reservations about continuing approval of those programs offering "partial" training beyond June 30, 1956, unless the hospitals concerned can develop a complete residency training program to include adult orthopedic surgery, fractures, basic sciences, and, if possible, children's orthopedic surgery. This action is in accordance with the policy that has been announced for the past several years, encouraging the development of full three year programs in the listing of approved services in the Internship and Residency issue of THE JOURNAL, Sept. 25, 1954, page 375.

RESIDENCY REVIEW COMMITTEE FOR RADIOLOGY

At a recent meeting of the Residency Review Committee for Radiology, representing the American Board of Radiology and the Council on Medical Education and Hospitals, the following policy was adopted. 1. Effective immediately, hospitals and institutions making initial application for approval for residency training in radiology must qualify for full three year approval. No new residencies of one or two year duration will be approved unless they are integrated with or contributory to a fully approved program. 2. All hospitals and institutions approved for residency training in radiology are expected to develop programs offering complete training, either intramurally or through affiliation, by June 30, 1957. The Residency Review Committee representing the American Board of Radiology and the Council on Medical Education and Hospitals has been established to act in behalf of these two organizations in approving residency programs in this specialty. The present policy relating to future approval for full training only has been adopted to insure that residents receive integrated training with graded responsibility and continuity of supervision during their three year residency. The requirement of a fully organized program in qualifying for approval is in accord with sound educational principles as adopted in several other specialty fields. The Committee does not believe it to be in the interest of the resident that he be permitted to take a year or more of isolated training in two or three unrelated programs in qualifying for board examination. The Committee has had the assurance of the board that residents who have accepted appointment to programs that are presently approved for less than three years will receive full credit for their training on the basis of the residency's present status, through June 30, 1957.

RESIDENCY REVIEW COMMITTEE FOR UROLOGY

At a recent meeting of the Residency Review Committee for Urology, the following policy was adopted. 1. Effective Oct. 1, 1955, hospitals making initial application for residency training in urology must qualify for three year approval (i. e., no new approvals for either one or two years will be granted). 2. Those hospitals now approved for residency training that are resurveyed after the above date must qualify for three year approval or lose their approved status. 3. All hospitals must have qualified for three year approval by July 1, 1957. Up to this date hospitals offering two year programs will have the opportunity to reorganize their programs and qualify for three year approval. Hospitals offering or that are able to offer only one year of training will have the opportunity to become affiliated with another institution that has a fully approved three year program. This committee with representatives from the American Board of Urology and the Council on Medical Education and Hospitals of the American Medical Association has been established to review and pass upon applications for approval of residency training in urology, acting in behalf of the two parent organizations. In adopting the present policy, the committee has had the assurance of the American Board of Urology that residents currently serving and residents appointed to begin their service on or before July 1, 1955, in such hospitals approved for one or two years will receive credit for such training even if the approval status of the program may be terminated at a time prior to completion of the academic year in which they are serving. The American Board of Urology will also continue to grant credit for training in hospitals presently approved at the one or two year level whose programs are not reevaluated on the basis of surveys during the residency year 1955-1956. This policy was adopted to insure that residents receive integrated training during their three year service, with graded responsibility and continuity of supervision. The requirement of a fully organized three year program is in accordance with the principle that has been adopted in other specialties of granting approval only on the basis of a fully organized program.

MEDICINE AND THE LAW

MEDICOLEGAL SYMPOSIUMS

Early in April the physicians and attorneys in Cortland County, New York, met together and heard a discussion by Albert Averbach, of the Seneca Falls, N. Y., Bar, on mutual problems, responsibilities, and attitudes. This experience, which was described in a recent letter from Mr. Averbach, is a relatively new and increasingly popular form of meeting that the Law Department feels is worthy of comment.

Last December Mr. George Hall, a staff member of the department, prepared an article for the *Illinois Bar Journal* with the optimistic title, "Let's Understand Each Other." In reference to meetings such as Mr. Averbach describes, the article states ". . . These meetings bring together the local lawyers and doctors for an evening of sociability and a discussion of some of their mutual problems. It would be a fine thing if such meetings could be held at least once a year in every county in the state. The result of these meetings is an understanding of each other's problems. Perhaps it would not furnish a witness for a particular case, but it will help each profession to respect the aims and attitudes of the other. . . . To the extent, also, that the attorney, by education, becomes aware of the physician's fears and problems, he will be able to approach the physician more tactfully and with better chance of success. If this article does nothing else, it is hoped that it may inspire the holding of medical society-bar association meetings at local level throughout the state. The results are sure to be gratifying to both professions and beneficial to patients and clients alike."

At about the same time another article appeared in the *New York State Journal of Medicine* under the title of "Doctors, Lawyers, and Injured Brains" in which Dr. Sands of Brooklyn, N. Y., said: "There should be mutual respect of physicians and lawyers for the responsibilities and attitudes of each other. This would prove a positive contributing factor to judicial verdicts. . . . Appreciation and respect of each others attitudes and responsibilities would contribute a better relationship between doctors and lawyers."

The American Medical Association has long been cognizant of the desirability of improving better professional relationships between physicians and attorneys. As early as 1944, its then Bureau of Legal Medicine and Legislation said in an annual report to the House of Delegates: "Periodic programs of this type, attended by members of the bar and by physicians, will result in a much needed diffusion of information in this important field." And in its final report last year, the Bureau said: "There seems to be evidenced a trend toward more frequent meetings of this sort. This is a healthy development that should be nurtured by medical and legal organizations." The trend referred to is not only apparent, it is real. The urgings of the American Medical Association, its Committee on Medicolegal Problems, and of others in this field are continually bearing more abundant fruit.

Since the creation of the Law Department last August, activity along this line has been intensified and staff members have participated in joint meetings at other places and most recently at Great Falls, Mont.; Appleton, Wis.; Dubuque, Iowa; Carbondale, Ill.; Oklahoma City; Minneapolis; Madison, Wis.; Springfield, Ill.; Toledo, Ohio; and Knoxville, Tenn.

What may well prove to be the A. M. A.'s most important contribution to date in the field of legal medicine is a series of Medicolegal Institutes that the Law Department and the Committee on Medicolegal Problems will sponsor next fall. Like the custom of prior years, the Committee on Legislation is planning six regional legislative meetings. Three of these meetings will be held on Saturdays in Chicago on Oct. 8, in Omaha on Oct. 15, and in New York City on Oct. 29. On the three Sundays that follow, Oct. 9, Oct. 16, and Oct. 30, the Law Department will sponsor all-day sessions, discussing various medicolegal problems of interest to, and open to, the physicians and attorneys in the particular area. Definite programs have not as yet been worked out, but the Law Department sincerely hopes and believes that these programs will be both interesting and informative.

The experience of the physicians and attorneys in Cortland County, New York, is being duplicated in many parts of the country. The snowball is growing larger. Physicians and attorneys will understand each other, they will improve their professional interrelationships, and society and the administration of justice will benefit from their efforts in this regard.

MEDICAL NEWS

CALIFORNIA

Course in Pathological Physiology.—University of California Extension in Los Angeles will open a course in pathological physiology to graduates of approved medical schools, Mondays, 7:30-9:30 p. m., Oct. 3-Dec. 19, in the third floor lecture room (33-103) of the University of California Medical Center, Los Angeles. The course is designed to aid practicing physicians in applying to clinical problems certain concepts relatively recently developed by the physiological sciences concerning the pathogenesis of disease. The effects of therapeutic procedures, particularly as they cast light on the physiological processes under discussion, will also be considered. Registration is limited. Requests for registration should be addressed to Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, University of California Medical Center, Los Angeles 24.

ILLINOIS

Personal.—Dr. Milton A. Dushkin, assistant medical director, North Shore Health Resort, Winnetka, has been appointed psychiatric consultant on the staff of the Illinois State Office of Civil Defense.

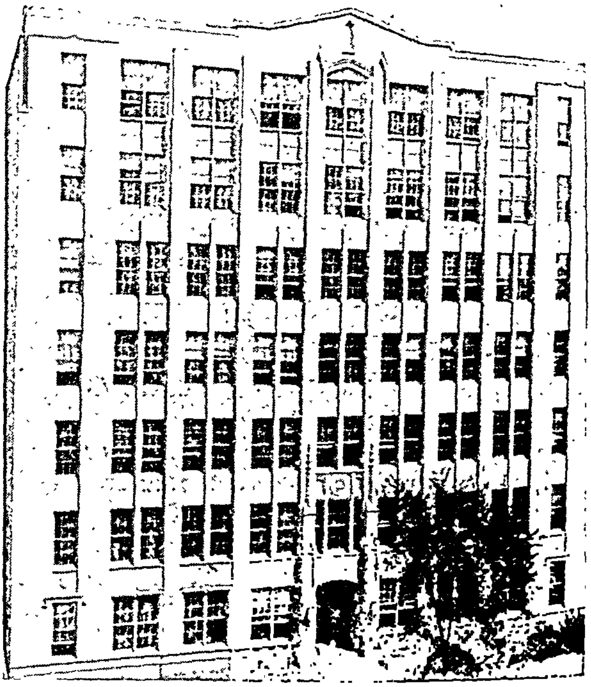
Dr. Peterson Night.—Dr. Martin D. Peterson, Paxton, was honored recently when more than 125 persons attended a banquet in appreciation of his service to Paxton, where he has practiced for 38 years, and to Rankin, which he has served for 9 years. The Paxton Chamber of Commerce presented him with a plaque in commemoration of the event. Dr. Peterson has served as county physician for the past 15 years and city physician for the past 20 years.

Chicago

Volunteer Medical Company.—A meeting of the Volunteer Medical Company 9-20, U. S. Naval Reserve, will be held at the U. S. Veterans Research Hospital, Room A-302, 333 E. Huron St. (MOhawk 4-6600), at 8:15 p. m. Sept. 27. "Urological Complication of Gynecologic Surgery" will be presented by Dr. Alfred W. Kneucker, associate in surgery, Chicago Medical School.

Courses in Radiological Physics.—Courses in two new specialized fields created by the atomic age, health physics and radiological physics, will be offered by the University of Chicago School of Medicine, beginning Oct. 4. Both two year programs lead to the master's degree. The research institutes of the university have a battery of radiation-creating machines ranging from a 450 million volt synchrocyclotron to linear accelerators, betatrons, and other specialized devices. The Argonne Cancer Research Hospital, built on the Midway by the Atomic Energy Commission, and operated for it by the university, is specially designed for the medical use of all radioactive sources in investigation and treatment. The new courses will be given in the department of radiology of the university's medical center, under the supervision of Lester S. Skaggs, associate professor of medical physics. Physicists, biologists, and doctors will participate in the instruction. During the second year of the courses, students will be employed half-time either in the university's health physics service or in the department of radiology.

Research Building Dedicated.—The new seven-story Morton Medical Research Building on the Northwestern University Chicago campus will be dedicated at 10:30 a. m. Sept. 27, during the 98th Founders Day ceremonies commemorating the establishment of the medical school. The building was made possible by a bequest of 2 million dollars, left in his memory by the widow of Mr. Joy Morton. Their son, Sterling Morton, chairman of the board of the Morton Salt Co., will make the presentation speech. Physicians participating in the dedicatory ceremonies will include: J. Roscoe Miller, president of the university, Richard H. Young, dean of the medical school, and Smith Freeman, professor and chairman of biochemistry. The building (310 E. Superior St.) is connected to the Montgomery Ward Memorial Building, which houses the medical and dental schools. Its features include movable metal wall partitions, which can be set up at any 10 ft. interval within the building, allowing speedy conversion of laboratories to almost any size. The department of surgery will conduct its research on the top floor, which is connected with the department of anatomy in the Ward building. On the fifth and sixth floors the departments of pharmacology and obstetrics and gynecology are connected to the department of physiology and bacteriology in the Ward building. On the third and fourth floors of the Morton building is the department of medicine; those floors in the Ward building accommodate, in addition to other sections, the department of biochemistry and some of the Montgomery Ward clinics. On the second floor, opposite other of the Ward clinics, are the departments of radiology, urology, and orthopedic surgery and a special radioisotope laboratory. The first floor of the Morton building has facilities for the department of neurology and psychiatry and for clinical art and photography.



Morton Medical Research Building.

INDIANA

Course in Electrocardiography.—The staff of the Robert M. Moore Heart Clinic of Indianapolis General Hospital will give a course in electrocardiography beginning the first Thursday in October. The course, which will be open to all physicians in Indiana, will be held in the Lilly Auditorium at General Hospital 7:30-9 p. m. Further information may be obtained by writing to the Robert M. Moore Heart Clinic, Indianapolis General Hospital, Indianapolis 7.

Personal.—Dr. Raymond M. Rice, who has been affiliated with Eli Lilly and Company since 1936, has been named executive director of medical research. He has been associate director of research since 1951 and before that was director of the medical

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

division.——Dr. Frank G. Keller, who has practiced in Alexandria since Jan. 6, 1893, retired in July and will divide his time between Grosse Pointe, Mich., and Lexington, Ky., where his children live. All physicians in Alexandria joined other friends at a farewell dinner July 1.——Dr. Leon T. Bogmenko, a graduate of the Imperial University of Saratov, Russia, and a resident of the United States since 1922, has been named medical and clinical director of the Wabash Valley Sanitarium at Lafayette. Dr. Bogmenko has been affiliated with Cook County Hospital, Chicago, the U. S. War Department, and the Veterans Administration and has served as health officer with the army of occupation in Japan.——Dr. William H. Wood became clinical director of the Norways Foundation Hospital, Indianapolis, July 1.

LOUISIANA

Postgraduate Seminar.—The first annual postgraduate seminar, cosponsored by the Third District Medical Society of Louisiana and the Lafayette Parish Medical Society, will be presented at the Evangeline Hotel in Lafayette, Oct. 1, 9:30 a. m. The program includes the following presentations by guest speakers, all of New Orleans:

Philip M. Tiller, Hormones in General Practice.
Morris Shushan, Liver Disease in Ambulatory Patients.
Richard E. Fowler, Congenital Heart Disease.
Daniel W. Hayes, Problems in Control of Diabetes.
Walter R. Akenhead, Gastrointestinal Bleeding.
Charles J. Miangolarra, Treatment of Hyperthyroidism.
Milton L. McCall, Management of Toxemia of Pregnancy.
John Adriani, Nerve Block in Management of Labor.
George T. Mellinger, Recent Advances in Treatment of Prostatic Disease.
Irving Redler, Recent Advances in Treatment of Fractures.

The program will include lectures, a round-table luncheon, medical motion pictures, and scientific exhibits. An invitation is extended to all interested members of the medical profession. There will be no registration fee. For information write Dr. Arthur A. Stamler, Secretary-Treasurer, Third District Medical Society, 510 St. Landry St., Lafayette.

MICHIGAN

Medical Forums.—In cooperation with the *Detroit Free Press* the Wayne County Medical Society will present "Living with Cancer," the last of three medical forums, Sept. 26, 8:15 p. m., at the Rackham Memorial Auditorium, Detroit.

Personal.—Providence Hospital of Detroit has appointed Dr. Robert I. McClaughry, formerly assistant dean of the Wayne University College of Medicine, Detroit, as director of medical education.——Dr. Elwood A. Sharp, Detroit, director of clinical investigation for Parke, Davis & Company since 1929, has been promoted to medical assistant to the firm's president. Dr. Elmore C. Vonder Heide, associate director of the clinical investigation department, has been named successor to Dr. Sharp. Dr. Sharp served 13 years in the Medical Corps of the United States Navy. Dr. Vonder Heide is on the staff at Harper Hospital and also has been an instructor in internal medicine at Wayne University College of Medicine. He is a director of the Michigan Arthritis and Rheumatism Foundation and medical advisor to the Multiple Sclerosis Foundation.

NEBRASKA

Circuit Course.—The Nebraska State Medical Association will present its fifth traveling postgraduate circuit course in Scottsbluff, Sept. 26; North Platte, Sept. 27; Grand Island, Sept. 28; Norfolk, Sept. 29; Fremont, Sept. 30; and Nebraska City, Oct. 1. According to Dr. William E. Wright, Creighton, president of the association, a nationally known group of doctors will speak on heart, cancer, and tuberculosis. Co-sponsors of the series are the Nebraska Heart Association, Nebraska division of the American Cancer Society, and the Nebraska Tuberculosis Association. All meetings will start at 1 p. m., continue until the dinner hour, and conclude with an evening meeting.

NEW JERSEY

Pediatric Amputee Conference.—A Congenital Child Amputee Conference and Clinic will be held Oct. 1 at the Kessler Institute for Rehabilitation, Pleasant Valley Way, West Orange. "Congenital Malformations and General Principles of Rehabilitation of the Congenital Amputee" will be presented at 10 a. m. by Dr. Henry H. Kessler, medical director, Dr. Earl F. Hoerner, clinical director, and staff specialists. Motion picture films and demonstrations will precede the luncheon hour, and clinic and examination of congenital amputee children will follow it. Congenital amputee children may be medically referred for program and examination. The conference is open to doctors, nurses, limb makers, therapists, and other rehabilitation personnel without charge. Advance registration should be made by calling Miss Joyce M. Collins, ORange 3-6571.

NEW YORK

Research Institute Offers Postgraduate Meetings.—The Chronic Disease Research Institute of the University of Buffalo School of Medicine is sponsoring postgraduate educational meetings for physicians of the Buffalo area during the Fall-Winter season. The opening meeting, Sept. 12, was addressed by Dr. Haqvin Malmros, professor of medicine, University of Lund, in Sweden, whose subject was "The Treatment of Hypercholesterolemia." On Sept. 27, Dr. M. F. Oliver, professor of medicine at the Royal Infirmary in Edinburgh, Scotland, will discuss "Coronary Atherogenesis—An Endocrine Problem?" The meetings, conducted in cooperation with the postgraduate education department of the school of medicine and the Western New York State Heart Association, are presented at 8 p. m. at the University of Buffalo School of Medicine.

Annual District Meeting.—The eighth district branch of the Medical Society of the State of New York will hold its 50th annual scientific session and dinner meeting Sept. 28 at Hotel Niagara in Niagara Falls under the presidency of Dr. Sidney L. McLouth, Corfu. The following program will be presented:

Headache, Francis L. McNaughton, Montreal, Canada.
Recent Advances in Vascular Surgery, Jere W. Lord Jr., New York City.
Changing Aspects of Thyroid Disease, Laurence H. Kyle, Washington, D. C.

Addresses will be made at the dinner meeting by Dr. James Greenough, Oneonta, president-elect of the state medical society, and the guest speaker, Charles A. Brady, Buffalo, professor of English at Canisius College, Buffalo, and literary critic of *The Buffalo Evening News,* whose topic will be "The Physician as Seen in Literature."

Symposium—Emergencies in General Practice.—A symposium, "Emergencies in General Practice," will be presented by the Erie County chapter of the New York State Academy of General Practice and Lederle Laboratories of Pearl River, Oct. 1, at the Hotel Statler, Buffalo. Dr. William H. Merrilees, Lancaster, president of the Erie County chapter, has issued a cordial invitation to all members of the medical profession for Erie County. Dr. Theodore H. Noehren, Buffalo, will serve as moderator for the morning session:

Pediatric Emergencies, Edward Press, Chicago.
Plastic Surgical Principles in Farm, Traffic and Industrial Accidents, James B. Brown, St. Louis.
Modern Management of Common Cardiac Emergencies, William G. Leaman, Philadelphia.

Dr. Garra L. Lester of Chautauqua, president, New York State Academy of General Practice, will address the luncheon session, after which the following program will be offered:

Abdominal Emergencies, William R. McCarty, New York City.
Obstetrical and Gynecological Emergencies, Morris E. Davis, Chicago.
Diagnosis and Treatment of Atomic Injuries, Joe W. Howland, Rochester.

The American Academy of General Practice will allow six formal credit hours.

New York City

Management of Mass Casualties.—A symposium on the management of mass casualties will be presented at the New York Academy of Medicine (2 E. 103rd St.) Sept. 27, 7 p. m., by the academy and the U. S. Army Reserve units—1st Army area—with the cooperation of the Office of the Surgeon General, United States Army, and Army Medical Service Graduate School, Walter Reed Army Medical Center, Washington, D. C. The meeting, which will be cosponsored by the New York and

Brooklyn regional committee on trauma of the American College of Surgeons and by the medical schools of Greater New York, is open to the medical profession, public health officers, and civil defense workers. Major Gen. Silas B. Hays, M. C., U. S. Army, surgeon general, will serve as chairman for the following program:

Weapons' Effects and the Anticipated Medical Problems, Lieut. Col. James B. Hartgering, M.C., chief, department of biophysics, Army Medical Service Graduate School, Walter Reed Army Medical Center.
First Aid and Emergency Medical Care, Lieut. Col. Joseph D. Goldstein, M.C., chief, department of atomic casualties studies, Army Medical Service Graduate School, Walter Reed Army Medical Center.
Hospital Organization, Col. Byron L. Steger, M.C., director, Interagency Institutes for Federal Hospital Administrators, Armed Forces Institute of Pathology, Walter Reed Army Medical Center.
Management of Trauma, Col. Joseph R. Shaeffer, M.C., surgical consultant to the surgeon general, Office of the Surgeon General, department of the Army, Washington, D. C.
Psychological Considerations in Nuclear Warfare, Col. Albert J. Glass, M.C., deputy director, neuropsychiatry division, Army Medical Service Graduate School, Walter Reed Army Medical Center.

NORTH CAROLINA

Heart Symposium.—The Winston-Salem Heart Symposium, sponsored by the Heart Association of Winston-Salem and Forsyth County will be held at the Robert E. Lee Hotel, Winston-Salem, Sept. 30, 9 a. m.-9 p. m. Speakers will be Drs. Charles K. Friedberg, New York, Hugh H. Hussey, Washington, D. C., and Arthur J. Merrill, Atlanta, Ga.

Personal.—Dr. J. Lamar Callaway, Durham, recently made a special tour in the Alaskan Theater of Operations for the U. S. Air Force and Army, during which he also made ward rounds, consulted on special dermatological problems, and lectured to medical personnel. Dr. Callaway was recently elected president of the Society for Investigative Dermatology for 1955-56.—— Dr. Watson S. Rankin, Charlotte, trustee of the Duke Endowment, has been awarded the honorary degree of doctor of science by the University of North Carolina, Chapel Hill. Dr. Rankin has served as a member of the House of Delegates of the American Medical Association, a member of the Council on Health and Public Instruction, and Chairman of the Section on Preventive Medicine and Public Health. He has also been secretary and president of the Conference of State and Provincial Health Authorities of North America and president of the American Public Health Association.

OKLAHOMA

Society News.—Dr. Paul C. Williams, associate professor of orthopedic surgery, Southwestern Medical School of the University of Texas, Dallas, will address the Tulsa Academy of General Practice Sept. 26 at Hotel Tulsa on "Chronic Low Back Pain." Reservations for dinner, 6:30 p. m., may be made by calling LUther 2-5904. The program will be at 8 p. m. All physicians are invited.

SOUTH CAROLINA

Practitioners Meet in Columbia.—The South Carolina Academy of General Practice will hold its annual meeting at the Columbia Hotel in Columbia Sept. 27-28. The program includes presentations by Drs. John A. Prior, Columbus, Ohio, and Robert C. Major, Augusta, Ga.; a seminar on prematurity; and a discussion on office anesthesia and analgesia. An invitation is extended to all members of the South Carolina Medical Association.

TENNESSEE

Conferences on Scientific Fairs.—The Oak Ridge Institute of Nuclear Studies, which is conducting work conferences in cooperation with state academies of science, presented the first conference, the Florida Science Fair Work Conference, at the University of Florida, Gainesville, Aug. 25-26. Other conferences scheduled include: Georgia Work Conference on Science Fairs, University of Georgia, Athens, Sept. 30-Oct. 1; Texas Science Fair Work Conference, University of Texas, Austin, Oct. 6-8; West Virginia Science Fair Work Conference, Jackson's Mill, Weston, Oct. 30-Nov. 1; and North Carolina Science Fair Work Conference, North Carolina State Agricultural and Technical College, Greensboro, Nov. 18-19. The conferences are designed to give inspiration and instruction in the total aspects of science fairs as educational tools for the advancement of science. The conferees will be elementary and secondary school teachers, instructional supervisors, educational administrators, and representatives from institutions of higher learning, industry, and communication mediums.

State Association Revises Postgraduate System.—In changing the type of postgraduate instruction it has been offering for 20 years, the Tennessee State Medical Association will substitute a symposium-type program for its circuit rider course, under which a full-time specialist has traveled over the state presenting lectures in a medical specialty. According to Dr. Frank L. Roberts, associate dean of the University of Tennessee College of Medicine, Memphis, chairman of the symposium committee, the new program will be on a two year trial basis. This year, meetings will be held in 10 cities; next year, 30 meetings will be held. A panel of specialists will present programs designed for general practitioners. The new program, which will offer 12 hours of instruction a year, will be presented from 4 to 6 p. m. and from 7 to 9 p. m. In the middle section of Tennessee the program will be on rheumatic fever in four cities, with the first meeting scheduled for Sept. 28 in Shelbyville. In three cities in eastern Tennessee, beginning Oct. 25 at Cleveland, the program will be on jaundice. The program for western Tennessee (traumatic and emergency surgery) will be held in Jackson, Dec. 7, Dyersburg, Dec. 8, and Memphis, Dec. 9.

GENERAL

Campaign Against Mental Illness.—The National Association for Mental Health has received a $50,000 contribution from the Smith, Kline & French Laboratories, Philadelphia, to help launch, in October, a nationwide campaign to mobilize a "citizens' army against mental illness." A staff of field service experts will work with the association's 33 state member associations and 425 local affiliates.

Psychiatrists Meet at Tulsa.—The annual meeting of the Mid-Continent Psychiatric Association at Western Village Hotel, Tulsa, Okla., Sept. 23-25, has as visiting distinguished guest speakers: Drs. Arnold P. Friedman and Harvey J. Tompkins, New York; Dr. Gordon R. Kamman, St. Paul; Dr. Leslie B. Hohman, Durham, N. C.; Dr. E. Vernon Hahn, Indianapolis; Dr. Dexter M. Bullard, Rockville, Md.; Dr. Abe Hauser, Houston, Texas; Drs. Robert A. Schneider, John Gussen, and Stewart Wolf, Oklahoma City; Dr. Louis A. Schwartz, Detroit; and Dr. H. Holland DeJong, Osawatomie, Kan.

Midwest Regional Librarians.—The Midwest Regional Group of the Medical Library Association will hold its annual fall meeting Oct. 15 at Miles Laboratories in Elkhart, Ind. The program will include talks on phases of current medical research by doctors from the Miles Laboratories and from Notre Dame. After luncheon there will be a general session devoted to library problems, with a panel or symposium, "Temporary vs. Commercial Binding in the Small Library" and another, "Compiling and Using a Procedure Manual in Training New Employees." The chairman of the group is Otilia Goode, A. M. A. Library, Chicago.

Tri-State Medical Meeting.—The Tri-State Medical Society will meet Sept. 28-29 at the Grim Hotel, Texarkana, Ark.-Texas. The session will open Wednesday at 9 a. m. with movies from the American College of Surgeons, after which "The Gallbladder Problem" will be presented by Dr. Robert L. Sanders, Memphis, Tenn., president of the Southern Medical Association, and "Pathology of Gallbladder and Liver" by Dr. William R. Mathews, Shreveport, La. Luncheon will be followed by an address, "The Administration's Medical Program," by Robert L. King, executive assistant to the Vice-President of the United States. Dr. John C. Burch, Nashville, Tenn., president of the Southern Surgical Association, will consider "Indications for Hysterectomy" at 2 p. m. and Dr. Joseph W. Kelso, Oklahoma City, "Technique of Hysterectomy" at 3 p. m. The Tri-State Urologic Society, which will hold its meeting at 2 p. m. Wednesday, will have as guest speaker Dr. James H. DeWeerd, Rochester, Minn.

On Thursday morning Dr. Richard V. Ebert, Little Rock, Ark., will present "Advances in Prevention and Treatment of Heart Disease." The sessions will conclude with a clinicopathological conference, 11 a. m., by Dr. Mathews, with clinical discussion by Dr. Ebert. The meeting is approved for credit by the American Academy of General Practice. Skeet shooting is scheduled for either day of the meeting, and entries in the golf tournament may play on either day.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated:

Area	Sept. 3, 1955		Sept. 4, 1954, Total
	Paralytic Type	Total Cases Reported	
New England States			
Maine	1	12	6
New Hampshire	..	18	6
Vermont	3	9	7
Massachusetts	128	817	72
Rhode Island	8	46	16
Connecticut	9	63	22
Middle Atlantic States			
New York	78	272	111
New Jersey	..	59	48
Pennsylvania	..	52	83
East North Central States			
Ohio	16	87	165
Indiana	10	33	35
Illinois	43	129	140
Michigan	31	123	117
Wisconsin	112	311	32
West North Central States			
Minnesota	17	41	51
Iowa	5	37	115
Missouri	5	18	46
North Dakota	..	4	8
South Dakota	..	5	5
Nebraska	No report received	No report received	38
Kansas	4	19	43
South Atlantic States			
Delaware	1	3	3
Maryland	7	15	18
District of Columbia	..	2	2
Virginia	7	10	30
West Virginia	6	13	27
North Carolina	3	27	39
South Carolina	7	13	18
Georgia	9	15	34
Florida	2	3	56
East South Central States			
Kentucky	5	14	55
Tennessee	4	10	30
Alabama	2	4	17
Mississippi	1	3	17
West South Central States			
Arkansas	2	6	19
Louisiana	8	8	22
Oklahoma	1	4	16
Texas	23	76	129
Mountain States			
Montana	No report received	No report received	7
Idaho	1	5	7
Wyoming	..	1	11
Colorado	8	21	27
New Mexico	4	6	14
Arizona	5	10	9
Utah	..	..	7
Nevada	..	4	8
Pacific States			
Washington	10	20	26
Oregon	15	22	16
California	33	63	268
Territories and Possessions			
Alaska	2	8	17
Hawaii	1	2	5
Puerto Rico	No report received	No report received	..
Total	637	2,043	2,123

Vermont-New Hampshire Medical Meeting.—The sixth annual combined meeting of the New Hampshire and Vermont state medical societies will convene at the Mount Washington Hotel, Bretton Woods, N. H., Sept. 29-Oct. 1. The following presentations will be made at the general session, Saturday, 2 p. m.:

Carcinoma of the Lung, Edward D. Churchill, Boston.
Retrolental Fibroplasia, Trygve Gundersen, Boston.
Is X-Ray Pelvimetry Feasible and Necessary for the General Practitioner Who is Doing Obstetrics?, Charles M. McLane, New York.
Use of Blood and Its Derivatives in General Practice, Sam T. Gibson, Washington, D. C.

Saturday morning the section on surgery will hear a paper by Dr. Ralph H. Adams, Wolfeboro, N. H., and a panel discussion, "The Surgery of Trauma," with Dr. Churchill as moderator. The section on internal medicine will have as guest speakers, Dr. William Dameshek, Boston, who will discuss "Bone Marrow Failure" and Dr. Sam T. Gibson, Washington, D. C., who will present "Diagnostic Problems in Anemia." Guest speakers at the eye, ear, nose, and throat meeting will be Dr. Gundersen, who will consider "Unusual Congenital Oculomotor Anomalies," and Dr. LeRoy A. Schall, Boston, whose topic will be "Cancer of the Larynx." Dr. James Townsend, chief medical officer, U. S. VA Center, White River Junction, Vt., will speak before the general practice meeting about "Diabetes: Pitfalls in the Management of 'Difficult' Cases."

Pediatricians Meet in Chicago.—The American Academy of Pediatrics will hold its 24th annual meeting at the Palmer House, Chicago, Oct. 1-6. Saturday and Sunday will be devoted to the presentation of 10 seminars. Twenty-two round-table discussions will be held from Monday afternoon through Wednesday morning. The general sessions will open Monday at 9:30 a. m. with a symposium on juvenile delinquency (Dr. Sherman Little, Buffalo, moderator). Dr. Harold E. Harrison, Baltimore, will serve as moderator for the Thursday morning symposium on endocrinology. Clinical sessions will be held Thursday afternoon at Children's Memorial Hospital; Children's Division, Cook County Hospital; Research and Educational Hospitals, University of Illinois; Bobs Roberts Memorial Hospital for Children, University of Chicago; and Sarah Morris Hospital for Children. Admission will be by ticket only ($1, including bus transportation to and from the hospital). The following alumni meetings and special events have been scheduled:

Monday luncheons—Buffalo Children's Hospital Alumni; Cook County Children's Hospital Alumni Group; Alumni of the Pediatric Department of the University of Cincinnati College of Medicine; Columbus Children's Hospital Alumni; and Alumni of the University of Rochester School of Medicine and Strong Memorial Hospital.

Monday dinners, 6:30 p. m.—Babies Hospital Alumni Association (New York) and Children's Memorial Hospital Alumni Banquet; evening meeting—Duke Pediatric Society.

Tuesday dinner and meeting—Children's Medical Center Alumni Group, Boston.

Thursday dinner—Bobs Roberts Memorial Hospital Alumni.

There will be a welcome hour (courtesy M & R Laboratories) Sunday, 6-7:30 p. m.; breakfast (courtesy Libby's Baby Foods) Tuesday, 7-9 a. m.; and reception and cocktail hour (courtesy Mead Johnson & Company) Wednesday, 6-7:30 p. m., preceding the banquet at 8 p. m.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 19-21. Sec., Dr. D. G. Gill, State Office Bldg., Montgomery.

Arizona:* *Examination.* Phoenix, Oct. 12-14. *Reciprocity.* Phoenix, Oct. 15. Exec. Sec., Mr. Robert Carpenter, 411 Security Bldg., Phoenix.

Arkansas:* *Examination.* Little Rock, Nov. 10-11. Sec., Dr. Joe Verser, Harrisburg.

California: *Written.* Sacramento, Oct. 17-20. *Oral and Clinical Examinations for Foreign Medical School Graduates.* San Francisco, Nov. 13. *Oral Examination for Reciprocity Applications.* San Francisco, Nov. 12. Sec., Dr. Louis E. Jones, Room 536, 1020 N St., Sacramento.

Colorado:* *Examination.* Denver, Dec. 6-7. Final date for filing application is Nov. 4. *Reciprocity.* Denver, Oct. 11. Final date for filing application is Sept. 12. Exec. Sec., Mrs. Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

Connecticut:* *Regular. Examination.* Hartford, Nov. 8-10. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic.* Derby, Nov. 8-19. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

Delaware: *Examination.* Dover, Jan. 10-12. *Reciprocity.* Dover, Jan. 19. Sec., Dr. Joseph S. McDaniel, Dover.

Florida:* *Examination.* Miami Beach, Nov. 20-21. Sec., Dr. Homer L. Pearson, 901 N. W. 17th St., Miami.

Georgia: *Examination.* Atlanta, Oct. 5-6. *Reciprocity.* Atlanta, Oct. 7. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Idaho: *Examination and Reciprocity.* Boise, Jan. 9-11. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Illinois: *Examination and Reciprocity.* Chicago, Oct. 11-13. Supt. of Registration, Mr. Fredric B. Selcke, State House, Springfield.

Indiana: *Examination.* Indianapolis, June. Exec. Sec., Miss Ruth V. Kirk, 538 K. of P. Bldg., Indianapolis.

Kansas: *Examination and Endorsement.* Topeka, Dec. 7-8. Sec., Dr. Lyle F. Schmaus, New Brotherhood Bldg., Kansas City.

Kentucky: *Examination.* Louisville, Dec. 5-7. Asst. Sec., Mr. R. F. Dixon, 620 S. 3rd St., Louisville.

Maine: *Examination and Reciprocity.* Portland, Nov. 8-9. Sec., Dr. Adam P. Leighton, Portland.

Maryland: *Examination.* Baltimore, Dec. 13-16. Exec. Sec., Miss Hannah A. McCarthy, 1215 Cathedral St., Baltimore 1.

Michigan:* *Examination.* Lansing, Oct. 12-14. Sec., Dr. J. Earl McIntyre, 118 Stevens T. Mason Bldg., Lansing.

Minnesota:* *Examination and Reciprocity.* Minneapolis, Oct. 18-20. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: *Reciprocity.* Jackson, December. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Missouri: *Examination and Endorsement.* St. Louis, Oct. 21-22. Exec. Sec., Mr. John A. Hailey, Box 4, State Capitol Bldg., Jefferson City.

Montana: *Examination and Reciprocity.* Helena, Oct. 4-5. Sec., Dr. Sidney A. Cooney, 7 West 6th Ave., Helena.

Nebraska:* *Examination.* Omaha, June 18-20. Director, Bureau of Examining Boards, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada:* *Examination and Reciprocity.* Reno, Oct. 4. Sec., Dr. G. H. Ross, 112 North Curry St., Carson City.

New Jersey: *Examination.* Trenton, Oct. 18-21. Sec., Dr. Patrick H. Corrigan, 28 W. State St., Trenton.

New Mexico:* *Examination and Reciprocity.* Santa Fe, Nov. 21-22. Sec., Dr. R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.

New York: *Examination.* Albany, Buffalo, New York City and Syracuse, Oct. 4-7. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany.

North Carolina: *Reciprocity.* Asheville, Oct. 31. Sec., Dr. Jos. J. Combs, 716 Professional Bldg., Raleigh.

North Dakota: *Examination.* Grand Forks, Jan. 4-6. *Reciprocity.* Grand Forks, Jan. 7. Sec., Dr. C. J. Glaspel, Box 228, Grafton.

Ohio: *Reciprocity.* Columbus, Oct. 4. *Examination.* Columbus, Dec. 15-17. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oregon:* *Reciprocity.* Portland, Oct. 13-15. *Examination.* Portland, January. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

Pennsylvania: *Examination.* Philadelphia, January. Acting Sec., Miss Marguerite G. Steiner, Box 911, Harrisburg.

Rhode Island:* *Examination.* Providence, Oct. 6-7. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Examination.* Columbia, Nov. 7. Sec., Mr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota:* *Examination.* Sioux Falls, Jan. 17-18. Exec. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Tennessee:* *Examination.* Memphis, Sept. 28-29. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

Texas:* *Examination and Reciprocity.* Galveston, Dec. 1-3. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

Virginia: *Examination.* Richmond, Dec. 7-9. *Reciprocity.* Richmond, Dec. 6. Final date for filing application is Nov. 21. Address the Secretary, 631 First St. S.W., Roanoke.

West Virginia: *Reciprocity.* Charleston, Oct. 10. Sec., Dr. N. H. Dyer, Charleston 5.

Wisconsin:* *Reciprocity.* Madison, Oct. 21. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., Madison.

Wyoming: *Examination.* Cheyenne, Oct. 3. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

Alaska:* On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Sec., Dr. John E. Kennedy, Agana.

Hawaii: *Examination.* Honolulu, Jan. 9-12. Sec., Dr. I. L. Tilden, 1020 Kapiolani, St., Honolulu.

Virgin Islands: *Examination and Endorsement.* St. Thomas, Nov. 8-9. Sec., Dr. Earle M. Rice, St. Thomas.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arkansas: *Examination.* Little Rock, Oct. 4. Sec., Dr. S. C. Dellinger, Zoology Dept., University of Arkansas, Fayetteville.

Connecticut: *Examination.* New Haven, Oct. 8. Address: State Board of Healing Arts, 258 Bradley St., New Haven 10.

District of Columbia: *Examination.* Washington, Oct. 24-25. Deputy, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington 6.

Florida: *Examination.* Gainesville, Nov. 5. Sec., Mr. M. W. Emmel, Box 340, Gainesville.

Iowa: *Examination.* Des Moines, Oct. 11. Sec., Mr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination and Endorsement.* Detroit and Ann Arbor, Oct. 14-15. Sec., Mrs. Anne Baker, 410 W. Michigan Ave., Lansing 15.

Minnesota: *Examination.* Minneapolis, Oct. 4-5. Sec., Mr. Raymond N. Bieter, 126 Millard Hall, University of Minnesota Campus, Minneapolis.

Nebraska: *Examination.* Omaha, Oct. 4-5. Director, Bureau of Examining Boards, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada: *Examination.* Reno, Oct. 4. Sec., Dr. Donald G. Cooney, Box 9005, University of Nevada, Reno.

Oregon: *Examination.* Portland, Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

South Dakota: *Examination.* Vermillion, Dec. 2-3. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Texas: *Examination.* Austin and Houston, Oct. 21-22. Sec., Brother Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

Alaska: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

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*Basic Science Certificate required.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

National Conference on Physicians and Schools, Moraine-on-the-Lake Hotel, Highland Park, Ill., Oct. 12-14. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago, Director.

Academy of Psychosomatic Medicine, Hotel Plaza, New York, Oct. 6-8. Dr. Ethan Allan Brown, 75 Bay State Road, Boston 15, Secretary.

American Academy for Cerebral Palsy, Claridge Hotel, Memphis, Tenn., Oct. 10-12. Dr. Robert A. Knight, 869 Madison Ave., Memphis 3, Tenn., Secretary.

American Academy of Neurological Surgery, The Homestead, Hot Springs, Va., Oct. 27-29. Dr. Eben Alexander Jr., Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago, Oct. 9-14. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

American Academy of Pediatrics, Palmer House, Chicago, Oct. 3-6. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Executive Secretary.

American Association of Blood Banks, Palmer House, Chicago, Nov. 19-21. Miss Marjorie Saunders, 3707 Gaston Ave., Dallas 10, Texas, Secretary.

American Association of Medical Clinics, Curtis Hotel, Minneapolis, Nov. 4-6. Dr. Edwin P. Jordan, Box 58, Charlottesville, Va., Executive Director.

American Association of Medical Record Librarians, LaSalle Hotel, Chicago, Oct. 3-7. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Director.

American Association for the Surgery of Trauma, Drake Hotel, Chicago, Oct. 27-29. Dr. James K. Stack, 700 N. Michigan Blvd., Chicago 11, Secretary.

American Clinical and Climatological Association, The Homestead, Hot Springs, Va., Oct. 31-Nov. 2. Dr. M. N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

American College of Anesthesiologists, Hotel Statler, Boston, Nov. 4-5. Mr. John H. Hunt, 188 West Randolph St., Chicago 1, Executive Secretary.

American College of Cardiology Interim Meeting, Hotel Claridge, Memphis, Tenn., Nov. 10-12. Dr. Philip Reichert, Empire State Bldg., New York 1, Secretary.

American College of Gastroenterology, Hotel Shoreland, Chicago, Oct. 24-26. Dr. Joseph Shaiken, 33 West 60th St., New York 23, Secretary.

American College of Surgeons, Conrad-Hilton Hotel, Chicago, Oct. 31-Nov. 4. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Secretary.

American Dental Association, San Francisco, Oct. 17-20. Dr. Harold Hillenbrand, 222 East Superior St., Chicago 11, General Secretary.

American Heart Association, Yung Hotel, New Orleans, Oct. 22-26. Mr. Irving Hexter, 44 East 23d St., New York 10, Secretary.

American Medical Women's Association, Board Meeting, Netherlands-Plaza Hotel, Cincinnati, Nov. 11-13. Miss Lillian T. Majally, 1790 Broadway, New York 19, Executive Secretary.

American Medical Writers' Association, Jefferson Hotel, St. Louis, Sept. 30-Oct. 1. Dr. Harold Swanberg, P.O. Drawer 110, Quincy, Ill., Secretary.

American Public Health Association, Muehlebach Hotel and Municipal Auditorium, Kansas City, Mo., Nov. 14-18. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American School Health Association, Hotel President, Kansas City, Mo., Nov. 14-18. Dr. A. O. DeWeese, 515 East Main St., Kent, Ohio, Secretary.

American Society of Anesthesiologists, Hotel Statler, Boston, Oct. 29-Nov. 3. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago 1, Secretary.

American Society of Clinical Pathologists, Drake Hotel, Chicago, Oct. 10-15. Dr. Clyde G. Culbertson, 1040-1232 West Michigan St., Indianapolis, Secretary.

American Society of Plastic and Reconstructive Surgery, Atlantic City, N. J., Sept. 25-30. Dr. Kenneth L. Pickrell, Duke Hospital Durham, N. C., Secretary.

American Society for the Study of Arteriosclerosis, Hotel Sheraton, Chicago, Nov. 6-7. Dr. O. J. Pollak, P.O. Box 228, Dover, Del., Secretary.

American Society of Tropical Medicine and Hygiene, Somerset Hotel, Boston, Nov. 2-5. Dr. John E. Larsh Jr., Dept. of Parasitology, School of Public Health, Chapel Hill, N. C., Secretary.

Association of American Medical Colleges, New Ocean House, Swampscott, Mass., Oct. 24-26. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

Association of American Physicians and Surgeons, Chicago, Oct. 7-8. Mr. Harry E. Northam, 185 N. Wabash Ave., Chicago 1, Executive Secretary.

Association of Life Insurance Medical Directors of America, Hotel Statler, New York, Oct. 19-21. Dr. Henry B. Kirkland, P. O. Box 594, Newark, N. J., Secretary.

Association of Medical Illustrators, Hotel Barbizon Plaza, New York, Oct. 1-3. Miss Rose M. Reynolds, Univ. of Nebraska College of Medicine, Omaha 5, Neb., Corresponding Secretary.

Association of Military Surgeons of the U. S., Hotel Statler, Washington, D. C., Nov. 7-9. Colonel Robert E. Bitner, 1726 I St. N.W., Washington 6, D. C., Secretary.

Association of State and Territorial Health Officers, Hotel Washington, Washington, D. C., Nov. 6-12. Dr. Franklin D. Yoder, State Board of Health, Cheyenne, Wyo., Secretary.

Central Association of Obstetricians and Gynecologists, Deshler-Hilton Hotel, Columbus, Ohio, Oct. 5-8. Dr. Edwin J. DeCosta, Suite 602, 116 S. Michigan Ave., Chicago 3, Secretary.

Central Neuropsychiatric Association, The Broadmoor, Colorado Springs, Colo., Oct. 20-22. Dr. Hamilton Ford, 112 North Boulevard, *Galveston, Tex., Secretary.*

Central Society for Clinical Research, Drake Hotel, Chicago, Nov. 4-5. Dr. Robert H. Ebert, 950 East 59th St., Chicago 37, Secretary.

Clinical Orthopaedic Society, Skirvin Hotel, Oklahoma City, Sept. 30-Oct. 1. Dr. Marcus J. Stewart, 869 Madison Ave., Memphis, Tenn., Executive Secretary.

College of American Pathologists, Drake Hotel, Chicago, Oct. 10-15. Dr. Arthur H. Dearing, 203 N. Wabash Ave., Chicago 1, Executive Secretary.

Congress of Neurological Surgeons, Hotel Statler, Los Angeles, Oct. 27-29. Dr. Philip D. Gordy, 1007 Delaware Ave., Wilmington, Del., Secretary.

Delaware, Medical Society of, Delaware Academy of Medicine, Wilmington, Oct. 17-18. Dr. Norman L. Cannon, 621 Delaware Ave., Wilmington, Secretary.

District of Columbia, Medical Society of the, Hotel Statler, Washington, D. C., Oct. 10-12. Mr. Theodore Wiprud, 1718 M St., N.W., Washington 6, D. C., Executive Director.

Gerontological Society, Sheraton-Belvedere Hotel, Baltimore, Oct. 27-29. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

Gulf Coast Clinical Society, Pensacola, Fla., Oct. 27-28. Dr. Barkley Beidleman, 1750 N. Palafox St., Pensacola, Fla., Secretary.

Indiana State Medical Association, French Lick Springs Hotel, French Lick, Oct. 16-19. Mr. James A. Waggener, 23 East Ohio St., Indianapolis 4, Executive Secretary.

Inter-Society Cytology Council, Statler Hotel, Cleveland, Nov. 11-12. Dr. Paul F. Fletcher, 634 N. Grand Blvd., St. Louis 3, Secretary.

Interstate Post Graduate Medical Association of North America, Municipal Auditorium, Milwaukee, Nov. 14-17. Mr. Roy T. Ragatz, 207 Gay Bldg., Madison 3, Wis., Executive Director.

Kansas City Southwest Clinical Society, Municipal Auditorium, Kansas City, Mo., Oct. 3-6. Dr. W. M. Kitchen, 306 E. Twelfth St., Kansas City 6e, Mo., Secretary.

Kentucky State Medical Association, Louisville, Sept. 27-29. Mr. J. P. Sanford, 620 S. Third St., Louisville, Executive Secretary.

Michigan *State Medical Society, Pantlind Hotel, Grand Rapids, Sept.* 26-30. Dr. L. Fernald Foster, 606 Townsend St., Lansing 5, Secretary.

Midwest Conference on Rheumatic Diseases, Henry Ford Hospital, Detroit, Oct. 5. Dr. J. J. Lightbody, 7338 Woodward Ave., Detroit 2, *Medical Director.*

Midwestern Section of American Federation for Clinical Research, Thorne Hall, Northwestern University, and Drake Hotel, Chicago, Nov. 3. Dr. Robert J. Glaser, Barnes Hospital, St. Louis 10, Secretary.

Mississippi Valley Medical Society, Jefferson Hotel, St. Louis, Sept. 28-30. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Mississippi Valley Trudeau Society, Hotel Savery, Des Moines, Iowa, Oct. 14. Dr. Harold G. Curtis, Sunny Acres, Cuyahoga County Tuberculosis Hospital, Cleveland 22, Chairman, Program Committee.

National Association for Mental Health, Indianapolis, Nov. 4-6. Mr. Robert M. Heininger, 1790 Broadway, New York 19, Director.

New Hampshire Medical Society, Mt. Washington Hotel, Bretton Woods, Sept. 29-Oct. 1. Dr. Warren H. Butterfield, 18 School St., Concord, Secretary.

Oklahoma City Clinical Society Conference, Oklahoma City, Oct. 24-27. Dr. Charles E. Leonard, 512 Medical Arts Bldg., Oklahoma City 2, Secretary.

Omaha Mid-West Clinical Society, Hotel Paxton, Omaha, Oct. 24-27. Mrs. Anne K. Ramsey, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

Oregon State Medical Society, Hotel Heathman, Portland, Sept. 28-Oct. 1. Dr. Richard R. Carter, 1020 S.W. Taylor St., Portland 5, Secretary.

Postgraduate Assembly in Endocrinology and Metabolism, Indianapolis, Sept. 26-Oct. 1. Dr. John J. Mahoney, Assistant Dean, Indiana University School of Medicine, 1040 W. Michigan St., Indianapolis 7.

Regional Meetings, American College of Physicians:

Billings, Mont., Oct. 7-8. Dr. Harold W. Gregg, 103 North Wyoming St., Butte, Governor.

Charleston, S. C., Oct. 7-8. Dr. Robert Wilson, 165 Rutledge Ave., Charleston, S. C., Governor.

Buffalo, N. Y., Oct. 14. Dr. John H. Talbot, 100 High St., Buffalo 3, N. Y., Governor.

Madison, Wis., Oct. 15. Dr. Frederick W. Madison, 425 East Wisconsin Ave., Milwaukee 2, Governor.

Louisville, Ky., Nov. 5. Dr. Sam A. Overstreet, 332 West Broadway, Louisville, Ky., Governor.

Newark, N. J., Nov. 9. Dr. Edward C. Klein Jr., 6 S. Kingsman Rd., South Orange, N. J., Governor.

Society of Clinical Surgery, Hotel Roosevelt, New Orleans, Nov. 11-12. Dr. Frank F. Allbritten Jr., University of Kansas Medical Center, Kansas City, Mo., Secretary.

Southern Medical Association, Shamrock Hotel, Houston, Texas, Nov. 14-17. Mr. V. O. Foster, 1020 Empire Bldg., Birmingham 3, Ala., Secretary-Manager.

Southern Society of Cancer Cytology, Houston, Texas, Nov. 14-17. Dr. J. Ernest Ayre, 1155 N.W. 14th St., Miami, Fla., Secretary.

Southwestern Medical Association, Phoenix, Ariz., Nov. 16-18. Dr. Celso C. Stapp, 800 *Montana St., El Paso, Texas, Secretary.*

State Medical Journal Conference, Chicago, Nov. 7-8. Mr. Alfred J. Jackson, 535 N. Dearborn St., Chicago 10, Director.

Tennessee Valley Medical Assembly, Read House, Chattanooga, Tenn., Oct. 3-4. Dr. Harry E. Jones, 109 Medical Arts Bldg., Chattanooga 2, Tenn., Secretary.

The Constantinian Society, Sheraton-Park Hotel, Washington, D. C., Oct. 26-29. Dr. C. F. Shook, P. O. Box 1035-36, Toledo 1, Ohio, Secretary.

Tri-State Medical Society, Grim Hotel, Texarkana, Tex., Sept. 28-29. Dr. Karlton H. Kemp, 408 Hazel St., Texarkana, Ark., Secretary.

Vermont State Medical Society, Mt. Washington Hotel, Bretton Woods, N. H., Sept. 29-Oct. 1. Dr. James P. Hammond, 337 South St., Bennington, Secretary.

Virginia, Medical Society of, Hotel Jefferson, Richmond, Oct. 16-19. Mr. Robert I. Howard, 105 West Franklin St., Richmond, Executive Secretary.

Western Orthopedic Association, The Reef, Honolulu, Hawaii, Nov. 7-10. Dr. Ivar J. Larsen, 1133 Punchbowl, Honolulu 13, Hawaii, Secretary.

Western Society of Electro-Encephalography, Westward Ho Hotel, Phoenix, Ariz., Nov. 10-12. Dr. Sylvester N. Berens, 902 Boren Ave., Seattle, Secretary.

FOREIGN AND INTERNATIONAL

Canadian Society for the Study of Fertility, Royal York Hotel, Toronto, Ont., Canada, Oct. 6-8. Dr. Earl R. Plunkett, 469 Waterloo St., London, Ont., Canada, Secretary.

Conference of International Union for Health Education of the Public, Rome, Italy, Apr. 27-May 5, 1956. Mr. Lucien Viborel, 92 *rue St. Denis, Paris* 1er, *France, Secretary-General.*

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Statler, Boston, Mass., U.S.A., Sept. 3-8, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of International Society for Research on Anesthesia, Miami Beach, Fla., U.S.A., Mar. 12-15, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of International Union Against Venereal Diseases, Naples, Italy, Sept. 25-28. For information address: Prof. Monacelli, University of Naples, Dept. of Dermatology, Naples, Italy.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, May 1956. Prof. Umberto Serafini, Largo della Gancia 5, Rome, Italy, Secretary-General.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik. Hamburg-Eppendorf, Germany.

International Academy of Legal and Social Medicine, Plenary Conference, Genoa, Italy, Oct. 13-17. Prof. Domenico Macaggi, Institut de Medicine legale, Universite de Genes, Genes, Italy, President.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Congress of Allergology, Rio de Janeiro, Brazil, S. A., Nov. 6-13. Dr. Bernard N. Halpern, 197 boulevard St. Germain, Paris 7^{e}, *France, Secretary General.*

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Buenos Aires, Argentina, S. A., Nov. 19-24, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of International Society of Bronchoesophagology, Buenos Aires, Argentina, S. A., Oct. 28-29. Dr. Juan Carlos Arauz, Cangallo 4015, Buenos Aires, Argentina, S. A., Secretary General.

International Congress of Medical Professional Jurisdiction, Medical Ethics, and Comparative Medical Law, Paris, France, Sept. 30-Oct. 3. Dr. J. R. DeBray, Conseil National de L'Ordre des Medécins, 60, Boulevard Latour-Maubourg, Paris 7e, France, Secretary General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Prof. P. Delore, 13 rue Jarente, Lyon, France, Secretary-General.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for Physical Therapy, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International General Medical Congress, University of Rosario Medical College, Rosario, Argentina, S. A., Nov. 7-12. Dean Jose Imhoff, Santa Fé 3100, Rosario, Argentina, S. A., Chairman.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P. O Box 672, Cairns, N.Q., Australia, Secretary.

Pan American Congress of International College of Surgeons, Mendoza City, Argentina, S. A., Oct. 22-26. For information address: Secretary, Caseros Av. 2154, Buenos Aires, Argentina, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Medical Social Convention, Bogota, Colombia, S. A., Oct. 15-22. Dr. Leopoldo E. Araujo, Avenida de los Presidentes Num. 506, Apartado 2589, La Habana, Cuba, Secretary.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

Venezuelan Congress of Medical Sciences, Caracas, Venezuela, S. A., Nov. 18-26. Dr. A. L. Briceno Rossi, Apartado 4412, Ofic. del Este, Caracas, Venezuela, S. A., Secretary General.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of The Journal. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Sunday, Sept. 25

NBC-TV, 2 p. m. EDT. "American Inventory" presents "The Days Grow Long," which dramatizes the need for a new attitude on the part of all Americans toward the country's growing number of older people and their problems.

Monday, Sept. 26

NBC-TV, 9 p. m. EDT. "Medic" features the first of two episodes on postpartum psychosis. Titled "And There Was Darkness," the first episode shows a young mother so depressed after the birth of a baby that she asks to be admitted to a mental hospital.

ABC-TV, 9:30 p. m. EDT. "Medical Horizons," presented in cooperation with the American Medical Association, will originate from Kessler Institute, West Orange, N. J. The report will show advanced methods of treating the handicapped individual, with emphasis on a multidisciplined approach.

Wednesday, Sept. 28

NBC-TV, 11:30 a. m. EDT. "Medical and Health News with Howard Whitman," a segment of the "Home" program.

MAGAZINES

Look, Sept. 20 and Oct. 4, 1955

"The Mentally Ill Tell Their Own Story," by Roland Berg

In a two-part article, *Look's* medical editor and a staff photographer report on their visit to St. Elizabeth's Hospital, Washington, D. C., giving in words and pictures an insight on current diagnosis and therapy.

Parade, Sept. 25, 1955

"Polio Report," by Robert Goldman

"Right now there is no reason to defer your child's inoculation with Salk vaccine in hopes of 'something better' tomorrow or next month. As with other immunizing agents, research on polio must continue slowly, painstakingly for perhaps several years. But it may be predicted safely that one day a greatly improved virus, tested and approved, will be ready for release."

Farm Journal, September, 1955

"Your Medical Check-up," by Caroline A. Chandler, M.D.

Every woman needs "regular and complete medical check-ups spaced according to her age and according to the doctor's recommendation. . . . If your doctor doesn't go along with the idea . . . you have the wrong doctor!"

Pageant, October, 1955

"A New Look at Mental Illness," by Lawrence Galton

The author tells of new drugs and new treatments for the mentally ill. Under drugs, he mentions chlorpromazine and reserpine, glutamine for epilepsy, Metrazol and niacin for reducing confusion in older patients, and Miltown for helping "tense and anxious patients." Under treatments, the author reports on trends in treating mental patients outside of institutions in England, Belgium, and the United States.

"Watch Your Next Operation"

A photographic feature that gives a patient's eye view of procedures before and after an operation.

"America Is Catching Spockitis," by David R. Lindsay

A personality sketch of Dr. Benjamin Spock and his family.

Coronet, October, 1955

"Fluoridation: Is It Safe?" by James Rorty

The author says that the "tide seems to be swinging towards the opponents of the (fluoridation) program. . . . They hold that far from being a public health boon of demonstrated safety and value, fluoridation is a dubious and inadequately tested venture into mass medicine. They argue that it is without precedent in public health history to apply such a wholesale program on the basis of such meager investigations of its safety and effectiveness."

"285 Years of Medicine"

Biographical sketches of four elderly medical doctors: 89-year-old Dr. William Vroom, 93-year-old Dr. William L. Warriner, 97-year-old Dr. Maurice J. Lewi, and 101-year-old Dr. Frederick B. Streeter.

DEATHS

Allen, Charles Alexander, Washington, D. C.; Howard University College of Medicine, Washington, 1910; for many years on the staff of the Freedmen's Hospital; died Aug. 14, aged 70, of congestive heart disease.

Brabham, James Charles ⊕ McColl, S. C.; Medical College of South Carolina, Charleston, 1934; engaged for many years in public health work, first in South Carolina and later in Mississippi; died July 18, aged 46.

Burnside, Isaac Marion, Los Angeles; Marion-Sims Beaumont Medical College, St. Louis, 1899; served on the staff of the Hollywood Presbyterian Hospital; died in Burbank July 2, aged 82, of coronary occlusion.

Cavanagh, John Leslie ⊕ Carlsbad, N. M.; University of Toronto Faculty of Medicine, Toronto, Canada, 1923; interned at the Riverdale Isolation Hospital and Hospital for Sick Children in Toronto, and the Lutheran Hospital in Brooklyn; served with the Canadian Expeditionary Force during World War I; died April 10, aged 58, of coronary occlusion.

Corlett, Thomas Gardiner ⊕ Colorado Springs, Colo.; University of Buffalo (N. Y.) School of Medicine, 1890; died in the Glockner Hospital Aug. 13, aged 87.

Culver, George Albert ⊕ Galveston, Texas; University of Texas School of Medicine, Galveston, 1945; interned at the Gorgas Hospital in Ancon, Canal Zone; served as associate professor of anesthesiology at Baylor University College of Medicine in Houston; on the faculty of his alma mater, now known as the University of Texas Medical Branch; on the staff of the John Sealy Hospital and affiliated hospitals; died May 17, aged 33, of coronary thrombosis.

Du Bois, Franklin Thomas ⊕ Liberty, Ind.; University and Bellevue Hospital Medical College, New York City, 1899; veteran of the Spanish-American war; served as county health officer and coroner; died July 2, aged 85, of senility.

Frost, Edward Harold ⊕ Willmar, Minn.; Louisville (Ky.) Medical College, 1899; for a time vice-president of the Minnesota State Medical Association; past-president of the Great Northern Railway Surgeons Association; held a position on the school board for many years; a city health officer and division surgeon of the Great Northern Railroad; at one time county coroner; past-chief of staff of the Rice Memorial Hospital; died June 2, aged 79, of coronary occlusion.

Gates, Arthur Marion ⊕ Ararat, Va.; Medical College of Virginia, Richmond, 1919; member of the Medical Society of Virginia; coroner for Dan River District, Patrick County; died July 4, aged 63, of pulmonary embolism.

Greaves, Horatio Norman, Champaign, Ill.; American Medical Missionary College, Battle Creek, Mich., and Chicago, 1906; Rush Medical College, Chicago, 1907; on the staff of the Burnham City Hospital; died July 31, aged 74.

Henry, Tully Lee, Wilburton, Okla.; College of Physicians and Surgeons, Little Rock, Ark., 1910; died July 27, aged 69, of coronary occlusion.

Hilton, Walter Scott, Tiffin, Ohio; Starling Medical College, Columbus, 1896; died in the Mercy Hospital June 12, aged 90, of carcinoma of the prostate and an injury received in a fall.

Johnson, George Frederick ⊕ Montalvo, Calif.; St. Louis College of Physicians and Surgeons, 1896; first mayor of East Moline, Ill., and served in that position for 14 years; veteran of World War I; died Aug. 6, aged 82, of arteriosclerosis and diabetes mellitus.

Klaptoz, Adalbert ⊕ Chicago; Medizinische Fakultät der Universität, Vienna, Austria, 1910; was frozen to death in a blizzard near Linz, Austria, while mountain climbing Aug. 8, aged 69.

Kretzmer, Eugene ⊕ Worcester, Mass.; Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany, 1908; served with the German Army during World War I; died in Fairlawn Hospital July 20, aged 72.

Lambert, Joseph S., Chicago; Northwestern University Medical School, Chicago, 1893; on the staff of the Englewood Hospital; died Aug. 8, aged 88, of chronic myocarditis.

McClellan, P. T. ⊕ Vero Beach, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1910; served as health officer; died in the Indian River Memorial Hospital June 10, aged 78, of aplastic anemia.

Mitchell, William James ⊕ Chicago; Rush Medical College, Chicago, 1903; died in the Woodlawn Hospital July 28, aged 73, of a cerebrovascular accident.

Nuzum, John Weston Jr. ⊕ New Orleans; Northwestern University Medical School, Chicago, 1951; certified by the National Board of Medical Examiners; member of the Illinois State Medical Society; formerly a resident at the Augustana Hospital in Chicago; served as a first lieutenant in the U. S. Air Force; resident at the Charity Hospital of Louisiana, where he interned; died Aug. 15, aged 29.

O'Dea, Patrick John, Sacramento, Pa.; College of Physicians and Surgeons, Baltimore, 1898; an associate member of the American Medical Association; on the staffs of the West Side and Mercy hospitals; died July 14, aged 80, of heart disease.

Petry, Franklin, Lowell, Ind.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; died in the Porter Memorial Hospital, Valparaiso, April 3, aged 81, of abdominal cancer.

Pohly, Albert G., New York City; University of the City of New York Medical Department, 1891; member of the Medical Society of the State of New York; for many years physician for the board of education; served on the staffs of the Lenox Hill Hospital and the Mount Sinai Hospital, where he died Aug. 10, aged 85, of adenocarcinoma of the stomach.

Rubbra-Morris, Jean Olive, Billings, Mont.; University of Kansas School of Medicine, Kansas City, 1945; interned at St. Margaret's Hospital in Kansas City, Kan.; formerly a resident at the Kansas City (Mo.) General Hospital, and the Research and Educational Hospitals in Chicago; on the staff of St. Vincent Hospital; died July 4, aged 34.

Scruton, Foster David, Detroit; University of Michigan Medical School, Ann Arbor, 1914; on the staff of the Detroit Memorial Hospital; died in Monterey Park, Calif., June 6, aged 69, of hypertensive cardiovascular disease.

Stern, Nathan ⊕ Indianapolis; Medical College of Indiana, Indianapolis, 1904; served during World War I; on the staff of St. Vincent's Hospital; died July 18, aged 74, of coronary occlusion and arteriosclerosis.

True, MaBelle, Topeka, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1897; died Aug. 2, aged 83, of a cerebral vascular accident.

Weiner, Samuel Isaac ⊕ Chicago; University of Illinois College of Medicine, Chicago, 1925; on the staff of Mount Sinai Hospital; died July 9, aged 58.

White, James R., Chicago; Meharry Medical College, Nashville, Tenn., 1897; served during World War I, when he received the Croix de Guerre from France; on the staff of the Provident Hospital; died at a resort near Mears, Mich., July 26, aged 84, of coronary occlusion.

Yarian, Norman Carey ⊕ Cleveland; University of Wooster Medical Department, Cleveland, 1896; on the staffs of the Lutheran and Lakewood (Ohio) hospitals; died in Bay Village, Ohio, July 28, aged 84, of uremia.

⊕ Indicates Member of the American Medical Association.

FOREIGN LETTERS

AUSTRIA

Retarded Elimination of Hydrocortisone.—At the June 16 meeting of the Society of Internal Medicine of Vienna, Geyer and Keibl described their observations on the elimination of injected hydrocortisone in healthy persons and in patients with liver disease and showed that the decomposition of this hormone is greatly retarded in liver diseases. Parenchymal diseases of the liver and biliary obstructions showed the same behavior in this respect. The results demonstrate the importance of the liver in the decomposition of the adrenal cortical hormones.

Hepatic Circulation.—At the same meeting Neumayr and Vetter demonstrated once more the clinical value of the nonsurgical method for ascertaining the hepatic circulation in human beings with the aid of colloidal radioactive gold. Investigations on 15 patients in whom the hepatic minute volume was ascertained simultaneously with radioactive gold and bromsulphalein revealed that the radioactive gold method revealed values that were on the average 15.6% lower than those obtained with the bromsulphalein method. An attempt was made to show that the radioactive gold method reveals values that correspond more closely to the actual quantities of blood in the hepatic circulation than do those obtained with bromsulphalein. This is especially true in patients with functional disturbances in the hepatic parenchyma.

Influencing of the Menstrual Cycle.—At the meeting of the Society of Physicians in Vienna on June 17, Dr. V. Grünberger stated that female patients often express the wish for a postponement of their menstrual cycles because of vacation, competitive sports, or polymenorrhea. Sixty women with polymenorrhea and with normal menstrual cycles were treated with estrogens. The treatment of choice was 20 mg. of the synthetic preparation dienestrol (Retalon) on the fourth and sixth days of the cycle. In 70% of the patients with polymenorrhea and in 87% of the women with a normal cycle, the onset of the next period was postponed for an average of six to seven weeks. At any time, the amenorrhea could be brought to an end by giving the patient two 25 mg. doses of progesterone. Successive menstrual cycles did not show any disturbance. In several patients with polymenorrhea, treatment was followed by a regulation of the menstrual cycle. In only one patient, a woman with glandular-cystic hyperplasia, long-continued bleeding occurred.

Functional Urinary Incontinence.—At a meeting of the Austrian Society of Gynecologists and Obstetricians in Vienna in June, Brandstetter and Gritsch reported that variations of the sphincteral power of the bladder depending on phases of the menstrual cycle may be observed in continent as well as in incontinent women with normal menstruation. The sphincteral capacity is measured as the difference in pressure between the bladder at rest and during squeezing of the bladder by contractions of voluntary muscles. In continent women one may find differences in positive pressure only, depending on phases of the menstrual cycle, while in incontinent women an observed negative difference in pressure may be abolished or turned into a positive difference in pressure at the time of the highest estrogen activity, but only in women in whom the negative difference in pressure is not too great. This makes possible the detection of functional urinary incontinence in women by distinguishing a temporary and a permanent incontinence.

BRAZIL

Total Gastrectomy.—In the third volume of *Publicações da Casa de Saude São Miguel* of Rio de Janeiro, Dr. Fernando Paulino and his co-workers reported 20 total gastrectomies performed in the last five years with no operative deaths. In 15 patients the pathological diagnosis was adenocarcinoma of the stomach, in 3 it was scirrhous carcinoma, in one it was lymphosarcoma, and in one squamous cell epithelioma of the esophagus extending into the stomach. In a follow-up of 19 of these patients, 10 had died; of these 3 lived more than one year. After a period of adaptation of three to six months, they enjoyed until their death a relatively normal life, free from pain and without dietary restrictions. Seven patients died within 10 months after operation. In this group the patients suffered from pain, vomiting, and nutritional disturbances. Of the nine patients still living, one had survived the operation for 30 months and another for 16 months. Both lead a normal life, without dietary restrictions. The other seven patients had been operated on for less than 10 months. Although this series is relatively small, the authors believe that, whenever possible, subtotal gastrectomy is the operation of choice, because, as compared with total gastrectomy, it provides a more comfortable postoperative period, even though the lesion recurs later. Total gastrectomy should be reserved for patients in whom a subtotal operation would not permit wide excision of all malignant tissue.

Acute Leukemia.—Two patients with acute leukemia predominantly localized in the kidneys were reported by Dr. Sílvio Jordão and his co-workers in the *Archives of the Hospital Central da Santa* (March 1, 1955). In the hematological study the authors emphasized the presence of immature and undifferentiated cells that cannot be classified in the normal blood series. According to Maffei this cell is a polyblast. It is also called a microhistiocyte, lymphocytoid cell, microhemocytoblast, and micromyeloblast. The authors agree with Carballo and Rohr regarding the value and position of Ferrata's hemohistioblast in the cell differentiation scale. For them only two cells are undoubtedly of value in the hematological picture of acute leukemia: the polyblast and the hemocytoblast. According to a new pathological concept of this disease, sponsored by the authors, the diagnosis is made by the identification of immature elements, regardless of their topographic distribution. Thus, this disease should be considered as a hyperplasia of the reticuloendothelial system, therefore a systemic disease.

ENGLAND

Cancer Research.—The Annual Report of the British Empire Cancer Campaign for 1954 is based on reports from 15 research institutions in this country and from individual workers and research institutions in Canada, Australia, and New Zealand. At the Chester Beatty Institute the whole tar from cigarette smoke and the neutral fraction have been applied to the skin for 18 months in five strains of mice, with a completely negative result to date. This suggests at most that any carcinogenic properties possessed by the tars are mild. In other experiments in which mice have been exposed for long periods to cigarette smoke the induction of lung cancer has not been observed. As this may simply be due to the unsuitability of this particular species, condensates from cigarette smoke and from cigarette paper smoke have also been examined for the presence of carcinogenic hydrocarbons and, in particular, 3:4-benzopyrene. In the case of the smoke condensate from cigarette paper, examination of a large series of fractions has led to the detection of 3:4-benzopyrene by methods based on photographic fluorescence and to its clear confirmation by the use of the Cary spectrophotometer. No estimate of the amount present has so far been made. In Glasgow, experiments to test the carcinogenic action of tar obtained from mechanically smoked cigarettes, administered over prolonged periods by feeding and by direct injection into the lungs of mice, and of tobacco tars produced under conditions as nearly as possible resembling those in ordinary smoking have proved negative. At the London *Hospital*, cigarette tobacco extracts obtained from the butts of naturally smoked cigarettes have also proved inactive in tests for carcinogenic, initiating and promoting, action.

The items in these letters are contributed by regular correspondents in the various foreign countries.

Nitrogen Mustard.—At the Chester Beatty Research Institute, 43 patients have been treated with the aromatic nitrogen mustard-CB 148, including 15 with Hodgkin's disease, 8 with disseminated lymphosarcoma, and 5 with lymphocytic leukemia. The daily oral dose was 0.1 to 0.3 mg. per kilogram of body weight for periods up to four months. Thirteen of the patients with Hodgkin's disease showed some response, but only two derived substantial clinical benefit. Responses of value have also followed treatment in four of five patients with giant follicular lymphoma and in a few of those with lymphocytic leukemia. Side-effects of nitrogen mustard-CB 148 are less than with nitrogen mustard-HN 2 and triethylene melamine. Although this new nitrogen mustard is a powerful bone marrow depressant, serious damage should be avoidable.

At the Westminster Hospital, nitrogen mustard-CB 148 has been used in 39 patients; 24 with Hodgkin's disease, 2 with lymphosarcoma, 3 with lymphocytic leukemia, 2 with granulocytic leukemia, 4 with plasma cell myeloma, and 3 with generalized carcinomatosis. Good temporary palliation has been achieved in many of the patients. Ten patients with advanced Hodgkin's disease and one with chronic lymphocytic leukemia have been treated with actinomycin but with little clinical control of the disease. Nitrogen mustard has been found to be the most useful drug for the control of plasma cell myeloma. Triethylene melamine has on occasion been used as an alternative to nitrogen mustard, but the remissions obtained with it have not been considered superior to those obtained with nitrogen mustard.

Polycythemia Vera.—At the Chester Beatty Institute in the last six years 49 patients with polycythemia vera have been treated with radioactive phosphorus. No side-effects or radiation reactions have been encountered. In 28 patients the phosphorus was given in two doses, at an interval of 6 to 12 weeks, the average dose being 5 mc. followed by 4 mc. Of these patients, 23 responded satisfactorily, 2 have not responded, one has anemia, one has anemia or leukemia, one has died of leukemia, and 2 could not be traced. In 21 patients, the phosphorus was given in a single injection of 4 to 7 mc. Of these, 15 have responded satisfactorily, one is resistant, 3 have died (one from a cerebral accident, one from heart failure, and one from osteosclerosis myelofibrosis), and 2 could not be traced. A review of 64 patients with chronic granulocytic leukemia treated in the last 17 years shows that of 17 treated with irradiation alone, 7 survived 3 years or longer; of 15 treated by chemotherapy, 4 survived 3 years or longer; and, with a combination of irradiation and chemotherapy, 19 of 32 patients survived for this period. All the surviving patients treated by chemotherapy were treated with Myleran, and the results achieved by this drug, particularly in combination with radiotherapy, were as good or better than those achieved by radiotherapy alone.

Adenocarcinoma of Rectum.—At the Department of Radiotherapy at St. Bartholomew's Hospital between 1937 and 1954, 189 patients with adenocarcinoma of the rectum were treated; in 82% the adenocarcinomas were surgically inoperable because of the extent of the disease, and in 18% they were inoperable because of the poor general condition of the patients. The five year survival rate was 5% as compared with the 12 to 15% rate for those undergoing surgery, a figure that includes early cases. The most striking effect of treatment was the relief of symptoms due to the primary growth. This occurred in over 60% of the patients, and in 41% it was not necessary to perform a colostomy.

Intestinal Metaplasia.—At Mount Vernon Hospital, 52 specimens of duodenal ulcer, 28 of gastric ulcer, and 39 of carcinoma, removed at gastrectomy, were examined for the incidence and extent of intestinal metaplasia at the pylorus, lesser curvature, and greater curvature. Areas of intestinal metaplasia were present in 78% of the stomachs examined (in 93% of those removed for carcinoma, in 82% of those removed for gastric ulcer, and in 65% of those removed for duodenal ulcer). Taking the series as a whole, the incidence of intestinal metaplasia at the pylorus was 71%, at the lesser curvature 46%, and at the greater curvature 35%. In the stomachs removed for duodenal ulcer, the pylorus was involved in nearly 60% of cases, whereas the lesser curvature (15%) and the greater curvature (10%) were seldom affected. In gastric ulcer the incidence at the lesser curvature (57%) and at the greater curvature (39%) was relatively higher, and at the pylorus the incidence was 71%. In the stomachs containing carcinoma the incidence of intestinal metaplasia at the pylorus was 87%, at the lesser curvature 79%, and at the greater curvature 67%. As these findings suggested that gastric carcinoma may arise from areas of intestinal metaplasia in the gastric mucosa, a series of 107 primary carcinomas of the stomach were examined. Of these, 35 appeared to arise from an intestinal type of epithelium. This is considered to be a conservative estimate, and it is probable that about half of all gastric carcinomas arise from areas of intestinal metaplasia.

At the same hospital, the Theratron cobalt unit has been used for the treatment of patients since March, 1954. The apparatus has been so designed that the 100-curie source can be rotated in a vertical plane through 360 degrees and can also be moved through an arc normal to the plane of rotation. The authors of the report have been impressed by the fact that it has been possible to deliver presumably adequate doses of a deep-seated lesion without causing severe reactions and without distress to the patient. Despite the advanced nature of many of the lesions that have been treated, primary regression and, in many, complete clinical disappearance has occurred to an extent not previously observed.

Ulcerative Colitis.—At St. Mark's Hospital there are records of 11 patients with cancer following ulcerative colitis, seven cases of which were found by examining colectomy specimens. The specimens made up a consecutive series, unselected in any way, and seven cancers were found in 120 colectomy specimens. The average age of these 120 patients was 42 years. They all had ulcerative colitis and were operated on primarily for this condition, but seven of them were found to be suffering from cancer of the colon. The present position is summarized by saying that any patient in whom severe ulcerative colitis has lasted more than 10 to 15 years has entered a phase of life when intestinal cancer has become a definite risk. The danger of cancer will increase still further with the years. The risk of cancer is not in itself sufficient to justify colectomy in ulcerative colitis if there is no other indication for such radical treatment, but it may sometimes be considered as an additional argument in favor of colectomy in a long-standing case.

Neuroblastoma.—The report from the Hospital for Sick Children, Great Ormond Street, includes a review of the 94 patients with neuroblastoma admitted to the hospital during the past 30 years; 77 presented symptoms during the first 4 years of life, and in one-third of the patients the first manifestation appeared during infancy. In 41 patients the tumors originated in the adrenal and in 24 from the adjacent sympathetic tissue in the abdomen. Metastases had occurred in two-thirds of the children on admission to hospital. Seventy-seven of the 94 patients have died. Death occurred within six months from the onset of symptoms in 75% of these children. The duration of the illness only once exceeded 14 months. In those fatal cases in which therapy was undertaken, no appreciable prolongation of life resulted. In two patients cure appears to have been the result of a spontaneous regression. A follow-up of 20 patients treated by surgery and/or radiotherapy shows that after two to five years 2 of the 5 treated by surgery, 1 of the 11 treated by radiotherapy, and all 4 treated by surgery and radiotherapy are alive. Further details are given of the 17 patients treated with cyanocobalamin. Ten of these children are still alive. The results to date are taken to indicate that vitamin B_{12} has an appreciable effect in nearly 50% of the patients to whom it has been given, although eventual relapse may occur. The therapeutic effects are encouraging in view of the fact that patients were selected for inclusion in this trial only because their disease was not considered amenable to surgery or radiotherapy, most of them already showing evidence of direct or metastatic spread of the neoplastic process by the time treatment was begun. Moreover, several children had been observed for several months before vitamin B_{12} therapy was instituted, with the result that their general condition was poor and some of them died soon after treatment was started. Even when only temporary regression occurred, this has nevertheless been impressive. The standard dose of vitamin B_{12} that is used is 1 mg. on alternate days, and, in patients who respond, this treatment is being maintained over a period of at least two years.

Carcinomas of Bronchus and Breast.—In a series of inoperable cases of carcinoma of the bronchus at Cambridge, it is concluded that intravenous administration of Synkayvite has a small but useful effect as a clinical radiosensitizer in radiotherapy. It appears to be possible to improve the response of some human malignant tumors to radiotherapy by means of chemical radiosensitizers. At Guy's Hospital, 497 patients with fibroadenosis have been followed for variable periods beginning in 1953, and, of these, 18 have developed carcinoma of the breast. Of 181 patients in whom a mass of fibroadenosis has been removed from the breast, 41 have required a further operation. Of 64 patients in whom a mass of adenofibroma of the breast has been removed, 10 have required a further operation. Fifteen patients with carcinoma of the breast that was inoperable when first seen have been able to undergo operation because of irradiation treatment. Seventy-four patients have been treated with large doses of estrogens. With one exception, these were all patients who were postmenopausal and who all had widespread manifestations of the disease in varying sites, both in the skeletal and soft tissue. Of these 74 patients, 7 were unable to take the drug, in 23 there was no response, in 31 there was a moderate response, and in 13 there was an excellent response.

Blood Grouping.—At Whipps Cross Hospital, blood grouping has been investigated in 434 histologically proved cases of malignant disease. The proportions of the various blood groups for malignant disease as a whole do not differ greatly from the controls. If, however, certain types of malignant diseases are placed in arbitrary classes (male genitourinary; female genitourinary; intestinal; respiratory; reticuloendothelial), some variations are seen. Thus, there is a preponderance of group O type blood in male and female patients with genitourinary cancers and of group MN in female patients with genitourinary and reticuloendothelial neoplasms. In female patients with genitourinary cancers, there is an excess of persons who are Rh-positive, and in patients with the four other classes of disease there is an excess of persons who are Rh-negative. The proportion of group B is remarkably constant in all classes. The percentage of blood group substance excretors seems to be raised in male and female patients with genitourinary and respiratory cancers but not in patients with the intestinal or perhaps the reticuloendothelial neoplasms.

Work of the Psychiatric Nurse.—A report on "The Work of the Mental Nurse," published by a joint committee of the Manchester Regional Hospital Board and the University of Manchester, calls attention to the amount of urinary and fecal incontinence in patients in mental hospitals and the apparent absence of attempts at habit training. It is estimated that in nursing time alone each instance of incontinence represents 10 to 20 minutes' extra work. Successful habit training could change the spirit of a ward, as well as saving unnecessary work. Job analysis shows that in most wards there is little requirement for technical nursing of the type required in a general hospital, and it is possible that by reorganization this requirement could be reduced still further. On the other hand, there are many duties specially related to the welfare of the patients, which may be carried out by a qualified nurse, a student nurse, or a nursing assistant according to the staff available in the ward. In general, these duties are well done, but this success is related not to technical qualifications but to the nurse's experience and natural capacity. Thus, psychiatric nursing is now learned largely by doing the job under the supervision of trained personnel and not by formal technical training. It is recommended that the length and content of the training course should be reviewed, with the object of providing courses that are integrally related to the work of mental or mental deficiency hospitals. This does not imply any reduction of standards but may make the course more attractive for those temperamentally suited to psychiatric nursing, because the inter-relation of theory and practice will be more evident and will grow naturally out of the work in the wards. There should be stricter selection of students for training, so that only those will set out on the full course of training who have a reasonable chance of passing. The grade of nursing assistant should be recognized and training for it standardized.

e job of a psychiatric nurse involves (1) basic nursing—the re and attention given to the patient in the interests of his comfort and general well-being and the maintenance of his physical health, (2) technical nursing—the nursing tasks concerned with the treatment of the particular illness, mental or physical, from which the patient is suffering, and (3) supervision—the tasks of teaching patients to be socially and morally conscious, establishing rapport between nurse and patients in order to build up personal esteem, observing special precautions to prevent violent outbursts, and keeping patients from escaping. To discharge all these functions effectively the trained nurse must, in addition to technical capacity, be able to show affection and understanding to the patient, train patients of varying ages and mental years to maintain their own personal hygiene, and establish a sense of security in the management of the ward.

Welfare State.—According to the annual report for 1954 of the Ministry of Pensions and National Insurance, at the end of 1954 the Ministry was paying over 900,000 war pensions; family allowances to nearly 3,250,000 families; and under the National Insurance schemes nearly 4,500,000 retirement pensions, about 500,000 widows' benefits and guardians' allowances, and 115,000 industrial disability pensions. In 1954, new claims for sickness benefits totaled more than 7 million, for unemployment over 2,500,000, and for industrial benefits over 80,000. The combined yearly cost of these and other social benefits paid by the Ministry was nearly 2 billion dollars. The standard weekly rates of unemployment benefit, of sickness benefit, and of the retirement pension at the minimum pension age have now risen to $5.60 a week for a single person and to $9.10 for a married couple. Widows' pensions have gone up to $5.60 a week and widows' allowances (for the first 13 weeks of widowhood) to $7.70 a week. The allowance for the first or only dependent child was increased to $1.60 a week and for each other child to 50 cents a week. Maternity grants have gone up to $28, home confinement grants to $11.20, and maternity allowances to $5.60 a week. Industrial injury benefits have risen to $9.45 a week for a single person and $13 for a married couple. Disability pensions are now $9.45 a week for 100% disability.

Salk Vaccine Trials Canceled.—Dr. G. S. Wilson, director of the Public Health Laboratory Service, announced on July 1 that the Medical Research Council had canceled the proposed trials with the Salk poliomyelitis vaccine in England. According to reports of informants in England, it is difficult to insure that every particle of virus in such a vaccine is killed, and it is difficult to see how any vaccine prepared by Salk's method can be guaranteed to be safe. Partly for this reason, and partly for immunologic reasons, many virologists believe that a vaccine containing a living, attenuated virus such as those used against yellow fever in man and against anthrax, hog cholera, and cattle plague in animals offers greater promise of success than a "killed" virus.

Obstetric Research.—To further the work of the existing obstetric research team in Aberdeen the Medical Research Council has agreed, in collaboration with the University of Aberdeen and the North-Eastern Regional Hospital Board, to form a unit for research in obstetrics under the direction of Prof. Dugald Baird. The unit will continue long-term research into problems of maternity, using a combination of epidemiological, clinical, and laboratory methods of investigation.

FINLAND

Respirator Treatment of Poliomyelitis.—In *Nordisk medicin* for July 14, Dr. Ossi Pettay reported that in 1954 there were 615 cases of paralytic poliomyelitis or 15 per 100,000 population. Seventy-four of these needed treatment in respirators. Five different types of respirator, each of which had its special merits and shortcomings, were used. The *Emerson* rocking-bed respirator proved to be reliable in practice, but because of its height it was difficult to lift very heavy patients into it. Electrically driven devices for aspiration were found to be reliable. All the patients treated in positive pressure respirators underwent early tracheotomy, the merits of which Pettay endorses in spite of the objection that it causes a severe psychic trauma. He found patients to be so alarmed at the prospect of suffocation that they gladly accepted tracheotomy, which was almost always followed by a large dose of scopolamine and morphine. Infections of the urinary tract were observed in nine patients, and there were two in whom the infection due to Proteus vulgaris proved refractory to treatment. Great difficulties were experienced in restoring the normal functions of the colon. The attacks of tachycardia to which about half the patients were subject did not seem to depend on defective ventilation of the lungs. It may have depended on paralysis of the vagus nerve, and it responded well to treatment with dihydroergotamine.

ISRAEL

Family Health Course.—A new course recently introduced at the Hebrew University-Hadassah Medical School places it in the ranks of those progressive medical institutions tending to lay stress on social and environmental factors in clinical medicine. It is a course in family health, a subject at present taught in only a few universities in the world. This course emphasizes the importance of the family in the study of human disease. It is an outgrowth of the increasing realization that physical illness is often associated with psychological and sociologic factors springing from environmental circumstances. The new course would have been impossible without an appropriate "laboratory," which exists at Hadassah's Community Health Center and aims at promoting the health of the community through methods based on this new approach to medical treatment. The staff consists of physicians, nurses, health educators, psychiatric social workers, a statistician, laboratory worker, psychologist, and an anthropologist. In other words, the health center offers preventive, curative, and rehabilitative services for both physical and psychological disorders but at the same time attempts insofar as possible to eliminate the factors that cause those disorders. That means not only clinical treatment on the premises but also (1) home visits by physicians and nurses who give individual guidance in health and hygiene; (2) efforts to straighten out domestic tangles; and (3) work in community groups by the health educators. The health center was inaugurated two years ago as an experiment, and its apparent success led to the setting up of a similar center at Ashkelon by the local council of the labor fund and the Ministry of Health. Hadassah plans to open two more centers, and the government plans to open four.

The course in family health will be compulsory for all fourth, fifth, and sixth year medical students. In a series of introductory lectures by members of the health center staff, an attempt will be made to integrate the study of pathology with clinical practice as related to individual and family health. The first group of fourth year students has completed this stage, and each student will be assigned a family in the center as his special subject of study until the end of the course. From time to time, groups of 10 students will meet with members of the health center staff to discuss the problems encountered in the studies of their assigned families, and at a certain stage all students will be required to spend a period in residence at the center. Although the new course in family health was recently introduced, facilities for postgraduate training have been available for the past year. Those wishing to specialize in family heal h must be prepared to devote a further five years to it after receiving their medical degree. Most of this time must be spent at a health center.

Cooley's Anemia in Oriental Jews.—In a report in the *Bulletin of the Research Council of Israel* (vol. 4, no. 4, March, 1955) Dreyfuss reported that Cooley's anemia has been observed in members of a Bukharian Jewish family and in Oriental, especially Kurdish, children. Diagnostic criteria for Cooley's anemia were a high erythrocyte count in the presence of a relatively low hemoglobin level (one patient had an erythrocyte count of 6,650,000 per cubic millimeter and 12 grams of hemoglobin per 100 cc.), increased resistance of the erythrocytes to hypertonic salt solutions, and the morphological changes typical of Cooley's anemia. A high incidence of Cooley's anemia was noted by the author in members of three families of Oriental Jews, one from Kurdistan, one from Urfa, and one from Nesibin (Kashmili Jews). The latter two towns are in the southeastern corner of Turkey. At least 17, and possibly 20, of the 32 members of the families examined were found to have the disease. Since the three index cases of these three families were admitted to the hospital because of rheumatic heart disease (a diagnosis proved at autopsy in two of them), a search was carried out for evidences of this disease in the other members of these families. Rheumatic heart disease was diagnosed if clinically and roentgenologically demonstrable lesions were present. Eleven, and possibly 13, of the 32 had rheumatic heart disease. Eight, and possibly 10, had both Cooley's anemia and rheumatic heart disease. The appearance of Cooley's anemia is genetically determined and the susceptibility to rheumatic disease is also considered to be so conditioned, but whether anything more than a chance relation exists between these two conditions in the patients so affected in this series is not known.

New Psychiatric Ward Opened.—Israel's first general hospital department of psychiatry was opened at the Hadassah University Hospital in Jerusalem. The department, which was established by the Hebrew University under the leadership of Prof. Milton Rosenbaum of Cincinnati, started with 10 inpatient beds. Diagnostic and treatment clinics for outpatients will be held twice weekly. The department will provide the core of the clinical teaching of psychiatry to students of the Hadassah Medical School, thus permitting the inclusion of this branch of medicine in the regular undergraduate curriculum as well as serving for the postgraduate training of physicians. Closely associated with the department and integrated into its teaching schedule are the Lasker Child Guidance Center of Hadassah, with its visiting director, Dr. George Mohr, of Chicago, and the Keren Nechuth Mental Hospital, under Prof. H. Winnik. The sum of $150,000 was obtained for the new department as a gift from the Julius and Marie Scheider Foundation in the United States through the good offices of Dr. I. S. Wechsler of New York, a member of the Hebrew University's Board of Governors.

New Clinic Opened.—At a typical Bedouin feast in honor of Mr. Yosef Serlin, Minister of Health, on the occasion of the opening of a two-room clinic in Tel El-Milh, a one hour drive from Beersheba, Sheikh Deeb Salim Abu Rhea said, "The State of Israel has invested millions of pounds in making the desert flourish; it has shown its great interest in easing our hard nomadic life and in making my tribe a settled people." The feast was held in a gigantic black tent that hugged the bleached yellow sands of the Negev. Mr. Serlin answered that making the desert flourish is a blessing to Arab, Jew, and the state.

New School of Dentistry.—A delegation of five dentists paid a two weeks visit to the Hebrew University. All of them were from the United States, where they are active in the drive being conducted in that country by the Alpha Omega fraternity to raise funds for the new Hebrew University School of Dentistry. During their stay in Israel, the delegation advised on the organization of the school and gave lectures and practical demonstrations on dental problems.

World Health Organization Regional Poliomyelitis Laboratory.—The virus laboratory of the Hadassah Medical School will serve as the regional poliomyelitis laboratory of the World Health Organization. The Medical School will receive a one time contribution of $2,000 from the World Health Organization for the purpose of acquiring the necessary equipment.

ITALY

Pathogenesis of Acute Rheumatic Fever.—At a meeting of the Medical and Surgical Society of Verona, Professor Severi said that two main alterations are found in patients with acute rheumatic fever: a fibrin-like degeneration and a marked basophilia made of large cells such as those found in myocardial granulomas. The fact that these alterations can always be found in rheumatic granulomas as a sign of impairment of the precapillary arterioles proves that the agent that causes rheumatic fever very likely attacks the arterial walls. In granulomas in which the muscle alterations are more marked, the newly formed basophils are in close contact with the residue of the altered muscular fibers, and this leads to the assumption that many of these elements should be considered of muscular origin. Their importance is, however, not clear, and it is not clear whether they should be interpreted as the expression of regenerative attempts on the part of the muscle fibers or as elements that have macrophagic capacity.

The main problem in the pathogenesis of acute rheumatic fever is to establish whether the inflammatory manifestations that are found in rheumatic patients should be ascribed to the direct action of a living agent or to one or more toxic chemical factors, whatever the origin may be. In other words, it is a matter of establishing whether the pathogenesis is chemotoxic or vitalistic. In support of the chemotoxic pathogenesis are many common theories, such as the toxinic, the enzymatic, and the allergic, but they do not give a satisfactory explanation for the mechanism of onset of the inflammations and their continued presence. On the other hand, the vitalistic pathogenesis cannot be accepted because the presence of a living agent in the rheumatic lesions has not as yet been demonstrated. The streptococcic pathogenesis, which appears to be the most probable, cannot be strongly supported because the mechanism by which the streptococci carry out their rheumatic-fever-inducing action has not been defined.

Professor Severi advanced the hypothesis that the streptococci act after undergoing a variation of the L type. The L-type streptococci, or midget streptococci, may originate after the initial streptococcemia that is secondary to the oropharyngeal inflammations, which precede the rheumatic attack. They may originate in the areas in which the normal streptococci that escaped the blocking and destructive action of the reticuloendothelial system survived and nested.

These variants would slowly cause some microgranulomas, which, because of their particular area of development near the vessels or in the walls of the vessels or near the margins of the cardiac valves, would at some time of their growth open up into the blood stream. The rheumatic attack with the entire complex of associated anatomic and clinical manifestations should, therefore, be ascribed to this sudden emission of L-type streptococci into the blood. The difficulty of cultivating the L-type streptococci and their slight or absent sensitivity to the standard antibiotics would explain why in rheumatic patients the cultures are always negative and antibiotic therapy ineffective.

Foods That Do Not Nourish.—Prof. Michele Mitolo of the University of Bari stated in *Notiziario Sanitario* (13:1 [Feb. 12] 1955) that some natural foods, when introduced into the organism, cause excessive destruction, elimination, or functional inhibition of essential nutritive principles. They are, therefore, antinutritive foods. The antagonistic activity of sodium and potassium is well known. It occurs also in the case of the multiplication of micro-organisms, which is favored by potassium and blocked by sodium. Calcium inhibits diastole and promotes systole to the point that, in high concentration, it results in the arrest of the heart in an exaggerated systole (calcium rigidity); it acts in a sympathomimetic manner, whereas potassium, its antagonist, acts in a parasympathomimetic manner. Manganese and iron act antagonistically in the development of higher plants so that, when the concentration of manganese increases in the plant, this shows the characteristic signs of iron deficiency (chlorosis), whereas, when the iron increases, manifestations of manganese deficiency can be seen. Amino acids also influence each other, and several pairs that are structurally similar are antagonists. Thus there is antithesis between lysine and arginine and between serine and threonine. Antagonism can also be observed in the case of amino acids that are structurally different. For example, amino acetic acid suppresses the action of serine and alanine. The antagonism between invertin and glucose or fructose is well known, as is also the fact that carbohydrates antagonize the action of vitamin B_1. Rancid fats can oxidize and destroy vitamin A, and an excess of fats decreases the antirachitic activity of a food. There are foods whose excess content of one or more vitamins can induce the deficiency of another vitamin and produce signs of hypovitaminosis or avitaminosis. A gradual diminution of ascorbic acid occurs in the organs of a pigeon in which beriberi has been produced by means of an exclusive rice diet. Sometimes the foods may contain enzymes that split some vitamins; the severe symptoms of muscular paralysis that are observed in animals receiving a diet rich in raw fish are due to the enzyme thiominase, which splits thiamine. The antinutritive elements have a certain selectivity of action. For example, Dicumarol behaves like antivitamin K in animals, whereas it is relatively atoxic for most micro-organisms.

Rheumatology Day.—The third rheumatology day was held in Rome on Feb. 12 and 13. It was organized by the rheumatological center of Rome under the direction of Professor Lucherini, who said that the importance of rheumatology is shown by the interest taken in discovering remedies, such as the recent syntheses of steroids with a marked antirheumatic activity that were derived from biliary acids, and by the preparation of a series of halogenated derivatives of cortisone and hydrocortisone. Professor De Sèze of France said the structural deterioration of an intervertebral disk is characterized by alterations of the nucleus pulposus and the annulus fibrosus that surrounds it. In the so-called preclinical stages, the nucleus pulposus dehydrates and becomes fragmented, while the annulus fibrosus presents at first fragmentation of the laminae and later numerous diastases through which fragments of markedly altered nuclear matter pass and reach the anterior and posterior periphery of the disk. In this phase the production of a classic posterior disk hernia may be observed. This should not, therefore, be considered, as it generally is, an autonomous disease but rather the terminal aspect of a pathological process that evolved in time, with or without marked clinical manifestations. Likewise, lumbar or lumbosacral arthrosis represents the final anatomic phase of the structural deterioration of the disk in vast and advanced forms. Various (professional, static, and dystrophic) etiological and pathogenetic factors can be used to explain the structural deterioration of the disk. The habitus of the patient, especially a state of decreased functional activity, and the mechanical aspects of the structural deterioration of the disk are important. The first phase of the degeneration of the disk is characterized by clinical findings of the so-called painful disk insufficiency; the phase during which a nuclear fragment wedges into the annulus fibrosus is characterized by acute lumbago; and the phase of posterior disk hernia is characterized by sciatica with involvement of the disk and radicle. Treatment should be individualized.

Professor Robecchi of Turin stated that the shoulder-hand syndrome should be classified with the dystrophic syndromes. It should be considered with respect to its proximal and distal localization. The former is a typical scapulohumeral periarthritis; the latter presents at first manifestations of painful swelling of the hand and later of rigidity with multiple trophic alterations. The etiological and pathogenic factors are not yet well defined. In some patients a relationship between the syndrome and a myocardial infarct is present. The treatment of this condition also should be individualized.

NEW ZEALAND

Pituitary Changes in Cryptorchism.—At the 14th meeting of the Otago Medical School Research Society in July, Dr. F. Bielschowsky reported (*Proc. Univ. Otago M. School* 33:17, 1955) on the alterations found in the pituitary of rats in which cryptorchism had been surgically induced 12 to 18 months earlier. These changes consist of an extraordinary hypertrophy and hyperplasia of those basophilic cells that secrete the luteinizing, or interstitial cell-stimulating, hormone. The individual cells vary greatly in size and stainability. Some resemble normal interstitial cell-stimulating hormone cells closely; others are larger and more heavily granulated than normal and have an enlarged Golgi apparatus. Exhausted cells with pyknotic nuclei and vacuolated cells are also present. In cryptorchism the diffuse hyperplasia of interstitial cell-stimulating hormone cells, which is also seen in rats with diethylstilbestrol implants, can assume in certain zones a nodular or even adenomatous character. These observations, in conjunction with the fact that so far in four rats with cryptorchism benign tumors of the breast have developed, suggest that an estrogen secreted by the ectopic testes may be a factor in the pathogenesis of the pituitary changes described.

CORRESPONDENCE

SIMPLE TEST FOR DIAGNOSIS OF METASTATIC CARCINOID (ARGENTAFFINOMA)

To the Editor:—An unusual syndrome has been described recently in association with malignant carcinoid of the small intestine and hepatic metastases (Isler, P., and Hedinger, C.: Metastasierendes Dünndarmcarcinoid mit scheren, vorwiegend das rechte Herz betreffenden Klappenfehlern und Pulmonalstenose—ein eigenartiger Symptomenkomplex? *Schweiz. med. Wchnschr.* **83**:4-7 [Jan.] 1953). This syndrome is principally manifested by peculiar cutaneous flushes, chronic diarrhea, respiratory distress, and valvular disease of the heart. Personal experience with five cases of this syndrome within the past few months and the knowledge of several other such cases makes it likely that there are many more such cases as yet undiagnosed. Because of protean clinical manifestations, the "carcinoid syndrome" may mimic a variety of diseases. The cutaneous flushes are characterized by episodic erythema, patchy cyanosis, and blanching and may be confused with other types of vasomotor instability. They were erroneously ascribed to the menopause in one of our patients. A persistent cyanotic appearance may be noted in the absence of decreased arterial oxygen saturation. The intestinal hypermotility simulates that seen in other conditions including dysentery, sprue, and functional gastrointestinal disorders. A prolonged clinical course aids in distinguishing malignant carcinoid from other malignant intestinal lesions. Paroxysmal dyspnea and wheezing are sufficiently prominent in some of the patients to cause confusion with other conditions causing bronchospasm. Valvular disease of the heart, usually pulmonic stenosis and tricuspid regurgitation, is apparently a late development. The hepatomegaly may lead to confusion of this syndrome with primary hepatic disease and, in the presence of valvular heart disease, may be falsely attributed to congestive failure. Thorsen and his co-workers (Malignant Carcinoid of the Small Intestine With Metastases to the Liver, Valvular Disease of the Right Side of the Heart [Pulmonary Stenosis and Tricuspid Regurgitation Without Septal Defects], Peripheral Vasomotor Symptoms, Bronchoconstriction, and an Unusual Type of Cyanosis: A Clinical and Pathologic Syndrome, *Am. Heart J.* **47**:795-817 [June] 1954) suggested that carcinoid tumors might secrete large amounts of 5-hydroxytryptamine (serotonin) that conceivably could induce the manifestations of the syndrome. Using methods developed in our laboratory hyperserotonemia and an elevated urinary excretion of a serotonin metabolite, 5-hydroxyindoleacetic acid (5HIAA), have been demonstrated in patients with this syndrome. The normal 24-hour excretion of 5-HIAA is 2 to 8 mg. In five patients with the carcinoid syndrome, it was 140 to 628 mg. Measurements of urinary 5-HIAA in a variety of clinical conditions indicate that an increased excretion of 5-HIAA is specifically associated with metastatic carcinoid. Because of the large excretion of 5-HIAA in these patients, a direct color assay for this substance can be employed on a small aliquot of urine. This simple test is an adaptation of the quantitative assay and is based on the development of a purple color, specific for 5-hydroxy-indoles, on the addition of 1-nitroso-2-naphthol and nitrous acid.

The reagents are: 1-nitroso-2-naphthol (0.1% in 95% ethanol); nitrous acid (prepare fresh by adding 0.2 ml. of 2.5% sodium nitrite to 5 ml. of 2 *N* sulfuric acid); and ethylene dichloride. The following methods are used: run a normal urine for comparison; pipette into a test tube: 0.2 ml. of urine, 0.8 ml. of water, 0.5 ml. of 1-nitroso-2-naphthol and mix. Add 0.5 ml. of nitrous acid; and mix again. Let stand at room temperature for 10 minutes, then shake with 5 ml. of ethylene dichloride. If turbidity results the tube should be centrifuged. A positive test is indicated by a purple color in the top layer. No purple color will be seen with normal urine, though a slight yellow may be noticed. Assuming an average 24-hour urine volume of 1,000 ml., a purple color will be seen at levels of 5-HIAA excretion as low as 40 mg. per 24 hours. At higher levels the color is more intense and is almost black at levels above 300 mg. per 24 hours. Another substance, *p*-hydroxyacetanilid, reacts similarly but is found in urine only after administration of acetanilid or related drugs. The color formation may be inhibited in conditions resulting in the excretion of huge amounts of keto acids.

Our experience with five cases of the carcinoid syndrome suggests that an elevated urinary excretion of a serotonin metabolite, 5-hydroxyindoleacetic acid, is a constant feature of this condition. The limits of the chemical diagnostic test can only be defined by a study of many such cases. Large amounts of 5-hydroxytryptamine or serotonin have been found (Lembeck, F.: 5-Hydroxytryptamine in a Carcinoid Tumour, Nature, **172**: 910-911 [Nov. 14] 1953. Ratzenhofer, M. and Lembeck, F. Über den Gehalt an 5-Oxytryptamin in Carcinoiden des Darmtraktes, *Ztschr. Krebsforsch.* 60:169-195, 1954) in solitary and metastatic carcinoid tumors, but it is still not known whether all carcinoid tumors produce 5-hydroxyindoles and secrete excess amounts into the blood. If carcinoid tumor is suspected clinically and the qualitative urine test is negative, a quantitative assay should be performed to detect abnormalities of 5-hydroxyindoleacetic acid excretion not revealed by the simple method.

ALBERT SJOERDSMA, M.D., PH.D.
HERBERT WEISSBACH, M.S.
SIDNEY UDENFRIEND, PH.D.
National Heart Institute
National Institutes of Health
Bethesda, Md.

POISONING

To the Editor:—In THE JOURNAL, May 28, 1955, page 335, in an otherwise scholarly and commendable article ("The Gentle Art of Poisoning") the following assertion is made: "An unmilitary race, the Jews, furnished the largest number of those who devoted their talents to this hand maiden of death." This assertion is, however, not supported by historical documentation. As a Hebrew scholar and historian of medicine, I am compelled to assure the readers of THE JOURNAL that no facts are known that might lend support to this view. The epical parts of the Bible often refer to elimination of enemies by assassination, but the "gentle art of poisoning" does not play a role in Biblical reports. In the Middle Ages, during the epidemic of the Black Death, an accusation was raised that the Jews had poisoned the wells. As a consequence many thousands of Jews were slaughtered. Historical research repeatedly revealed the unfoundedness of this accusation. During the Middle Ages many kings, popes, and princes preferred Jewish physicians. Apart from the consideration of professional skill, this preference was based on the conviction of these dignitaries that Jews would not dare to poison them by so-called medical procedures, since they would thereby bring down disaster upon their co-religionists. A Hebrew medical manuscript of the 13th century "Sefer Hayosher" (Book of Righteousness) urges Jewish physicians to excel in the careful medical treatment of gentiles (Friedenwald, H.: Jews and Medicine, Baltimore, Johns Hopkins Press, 1944, pp. 560, 661).

Finally I wish to comment on the second column of the paper, where the second paragraph refers to Hebrew literature. The drug dudaim (misprinted sudaim) in Genesis 30:14, is indeed Mandragora and was used as an aphrodisiac. The "bitter waters," Numbers 5:18, was used as an ordeal on mystic and not on toxicologic grounds. As to witches there is a general reference to them in Exodus 22:17 without any connection with the art of poisoning.

JOSHUA O. LEIBOWITZ, M.D.
Secretary of the Israel Society of the
History of Medicine and Science
7 Solel Boneh St.
Jerusalem-Katamon, Israel.

ADVICE PRIOR TO MARRIAGE

To the Editor:—As an obstetrician and a gynecologist, I have a growing interest in better preparation for marriage among young people. Those of us who have long been in practice know of the number of couples who, finding their marriages going on the rocks, come to their doctors for help. If our young people had better instruction on the "facts of life" before they married, we would have fewer problems in marriage. The physician seldom has the two or three hours necessary to counsel premarital couples even if he were skilled in all phases of marriage. The Planned Parenthood Federation of America is one of the few agencies to which a physician can refer his premarital patients for broader education for marriage. Most of the larger cities have a program of education for marriage in conjunction with other Planned Parenthood services. For their addresses, one may write the Planned Parenthood Federation at 501 Madison Ave., New York 22, N. Y. The Roman Catholic church provides its young people with information in its pre-cana conferences. I am familiar with the course conducted by the Planned Parenthood Association in Chicago, at 203 N. Wabash Ave. A four-session course held weekly each month provides engaged and newly-wed couples with salient facts about marriage. Each two-hour session has a leader who discusses the physical, emotional, and spiritual aspects of marriage, as well as interpersonal relationships and money-management. In these sessions there is much give and take. Before the course is finished many questions have been answered and fears allayed. Patients are referred back to their physicians because one of the important features of the Planned Parenthood Association is not to interfere with the physician-patient relationship. The Planned Parenthood groups know they can not do the whole job. They encourage candidates for marriage to have complete physical examinations by their own physicians. They emphasize that the girls getting married should have a careful pelvic examination. Young people often feel that if they have the blood test required by law, that is all that is needed. Planned Parenthood encourages young people to seek the knowledge and understanding that lead to harmonious marriage. Unfortunately, physicians have neither the time nor the knowledge to cover all aspects of marriage. Education for marriage is a comparatively new service offered by Planned Parenthood Associations, and many physicians may not know of its existence. I should like to recommend that they inform prospective brides and grooms that this essential course is available.

J. P. Greenhill, M.D.
55 E. Washington St.
Chicago.

THE CADUCEUS

To the Editor:—The introduction of the caduceus as the insignia of the Medical Corps of the U. S. Army is not an error as stated by Dr. James E. Cottrell (*J. A. M. A.* **158**:1308 [Aug. 6] 1955). In a paper entitled "Medical Symbols and Medical Saints" published in Merck Report July, 1949, I stated that the most satisfactory explanation of how the staff of Mercury with its two wings and two serpents was ultimately chosen as the official insignia of the Medical Corps of the U. S. Army is contained in an article that appeared in the *Classical Journal* (vol. 25, 1929-1930) and which states that in 1909 the caduceus was introduced by Col. John R. van Hoff as a result of extensive studies of Babylonian mythology. Colonel Fielding H. Garrison, the well-known medical historian, became van Hoff's chief supporter in the use of the caduceus, especially after the publication of studies on the subject made by A. L. Frothingham in 1916, the results of which were fully set forth at that time in the *American Journal of Archeology*. Frothingham shows that the Greek god, Hermes, was an assimilation of the old Babylonian snake god, the awakener of life and vegetation and the master of the healing art. Hermes was the first to be represented with the caduceus, the first example of which is to be seen on a libation vase of about 3,500 B. C. found at Lagash in Mesopotamia. The snake god, messenger of the supreme goddess, Ishtar, also was the god of the treaties and their sanctity after wars and the god of the envoys designated as such by the caduceus, bringing peace and armistice messages to the fighting armies. They were protected against all harm by this insignia of their neutrality. Thus Colonel van Hoff suggested the use of the caduceus as the official symbol of the Medical Corps to stress the noncombatant status of that branch of the Army.

Walter K. Frankel, M.D.
Picatinny Arsenal
Dover, N. J.

DISPOSAL OF DRUG SAMPLES

To the Editor:—In The Journal, June 4, 1955, page 424, in the Correspondence section are letters concerning discarding of drug samples. I have found the Society of St. Vincent de Paul to be my salvation. This society will call for and take clothing, furniture, books, magazines, and even bedding. These things are used for such purposes as family relief, vacation equipment for poor children, Christian burial of unclaimed bodies of Catholic faith, care of seamen, visitation of sick in hospitals, and juvenile crime prevention. For some years I have collected samples of drugs and kept them in a carton that, when filled, is picked up by the society. I notify this agency either by telephone or postcard, the latter incidentally being supplied by the society. Apparently some of this material is used in behalf of a hospital that the society conducts. It contains 250 beds and is for children, many of them foundlings. Some children are adopted; the remainder are kept indefinitely. The hospital, St. Vincent's, sorts out that which can be used and burns or disposes of the remainder. I refer to my own experience simply with the thought that other doctors may find similar institutions in their own locations that may be able to use the samples and other material not desired by the physician.

John L. Redman, M.D.
331 S. 18th St.
Philadelphia 3.

RETIREMENT FOR DOCTORS

To the Editor:—Several months ago, I proposed a plan for retiring doctors that was published in the Correspondence section of The Journal (158:216 [May 21] 1955). The response from many doctors was very encouraging. Some have suggested that the American Medical Association should undertake to promote it. I am informed that it is against the principles of the American Medical Association to assume financial responsibilities for such enterprise. Therefore, it will have to be promoted by the doctors themselves as a private organization. I realize that this is a great undertaking with many responsibilities and will require the help of many men. If all those interested in furthering the project would be kind enough to send me their names and addresses, and if possible, their willingness to take an active interest, we could then arrange a time and place for a meeting, elect officers, and formulate plans for its development.

John Peters, M.D.
715 Lake St.
Oak Park, Ill.

CHLORPROMAZINE DERMATITIS

To the Editor:—Considerable amounts of chlorpromazine are used in this hospital, and there has been one severe case of dermatitis in a nurse who handled this material. Treatment was instituted after the allergy first became apparent, and she returned to work using the recommended precautions of gloves and other routine care. Even this exposure was too much for her, however, and she developed a generalized dermatitis requiring hospitalization and two months' loss of work after being exposed only to the fumes from broken vials of this material. We are now following the practice of relieving any nurse or any attendant following the slightest allergy to this material completely from all further contact.

M. M. Campbell, M.D., Superintendent
Eastern State Hospital
Medical Lake, Wash.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Rheumatic Fever Activity Determination by Two Correlative Methods. R. K. Skillman, W. Spurrier, I. A. Friedman and S. O. Schwartz. A. M. A. Arch. Int. Med. 96:51-60 (July) 1955 [Chicago].

Skillman and associates show that the principle of the antigen-antibody reaction has been the basis for numerous tests to identify infectious diseases. It has also been shown that erythrocytes that have been coated with an antigen are agglutinated when antiserum prepared from this coating antigen is added. When complement is added to this system, under certain conditions, hemolysis occurs. Because rheumatic fever is associated with tissue reaction to group A beta-hemolytic streptococci, the studies described aimed to determine whether a means of identifying a specific bacterial antigen, or antibodies elicited by it, could be the means of ascertaining rheumatic fever activity. Two methods of determination were employed. In one method, serum of rheumatic fever patients was used as the antibody source; sheep red blood cells, coated with heat-killed group A beta-hemolytic streptococci, which had been isolated from active rheumatic fever patients, were used as the antigen source; complement was added to produce hemolysis. The other method utilized group A beta-hemolytic streptococci antiserum obtained from rabbits as the antibody source; erythrocytes of rheumatic fever patients, exposed to the antigen for coating in vivo, were used in an agglutination test as the antigen source. In most instances the hemolysis method, using patients' serum as the antigen source, was found to be somewhat more sensitive; in both methods, treating erythrocytes with papain was found to enhance the reaction. Control studies of 77 varied patients, including those from whom alpha-hemolytic and beta-hemolytic streptococci were isolated, showed no instances in which other disease processes interfered with either test method. This would indicate an excellent specificity of these tests in active rheumatic fever. Clinical correlations were obtained for 78 rheumatic fever patients, most of whom were tested at intervals of the disease process. The titers in both test methods were elevated within the first few days of the active process in most cases, and they then gradually subsided and disappeared as the process became inactive. The results also indicated an excellent correlation between the test results and the clinical status of the disease, although the height of the titer was not indicative of the severity of the process. The authors conclude that these methods are of practical value in ascertaining activity or quiescence of a rheumatic fever process, as well as in distinguishing rheumatic fever from other disease processes.

Pulmonary Embolism: A Review with Emphasis on Clinical and Electrocardiographic Diagnosis. S. Krause and M. Silverblatt. A. M. A. Arch. Int. Med. 96:19-25 (July) 1955 [Chicago].

The autopsy incidence of pulmonary embolism is much higher than that anticipated by clinical diagnosis. The authors reviewed the cases of pulmonary embolism that occurred at Montefiore Hospital during the past five years. Of 67 records examined, the authors selected 62, because in 5 the data were inadequate. Autopsies were performed in 33 of the cases. Twenty-nine patients recovered. There were 49 medical cases and 13 surgical. Of the 33 autopsied cases (25 medical and 8 surgical), only 9 were correctly diagnosed before death. With regard to the pathological aspects, the authors differentiate two types of pulmonary embolism: (1) massive, fatal pulmonary embolism without pulmonary infarction and (2) pulmonary embolism with pulmonary infarction. In fatal pulmonary embolism without pulmonary infarction, the main stem of the pulmonary artery and the larger branches are blocked by a clot that is twisted, cylindrical or thickened, fragmented or intact, and varying in length from 15 to 30 cm. The cylindrical clots originate in the femoral and external iliac veins. Because death is usually sudden, there is inadequate time for pulmonary infarction and secondary pathological changes to develop. The lungs are only slightly edematous and hyperemic. The right ventricle is usually dilated. Infarction of the lung secondary to pulmonary embolism was observed in 24 of the 33 autopsied patients. Usually the infarct is pyramidal or wedge-shaped, with its base directed pleurally and its apex at the site of vascular occlusion. The very fresh infarctions are not so sharply defined. During the first few days, the infarct is pink and soft. Later the infarcted area becomes progressively firm and dark until organization is completed. A region of fibrinous pleuritis, resulting in fibrous pleural adhesions, often marks the site of a previous pulmonary infarction. Many infarcts apparently disappear, but, if the lung is carefully inflated and diligent search made, small peripheral scars often indicate the site of the old pulmonary infarction. The incidence of signs and symptoms of pulmonary embolism are recorded as follows: apprehension and related mental symptoms were observed in 60, pulmonary infarction in 58, peripheral circulatory collapse in 50, and failure of the right side of the heart in 45 patients. The authors feel that a high index of suspicion is the first prerequisite for diagnosing pulmonary embolism. Physicians should be especially aware of the frequency of pulmonary embolism as a complication of congestive heart failure. Apprehension, anxiety, and their concomitants should be considered "premonitory" symptoms of pulmonary embolism. These warning signs, often confirmed by early electrocardiographic studies, should lead to vigorous prophylactic treatment. The electrocardiogram may be diagnostic or suggestive of pulmonary embolism when physical signs are absent. The authors feel that in the future, with improved techniques, it may often become possible to remove an obstructing embolism from the main pulmonary artery.

The Effect of Corticotropin and Cortisone on Respiratory Function in Bronchial Asthma. T. W. Fyles, J. A. P. Pare and B. Rose. J. Allergy 26:340-358 (July) 1955 [St. Louis].

Eight patients with bronchial asthma were selected at random and were hospitalized for two weeks at the beginning of the study. A complete medical and allergic work-up was done, including skin tests, hemogram, roentgenograms of the chest and sinuses, excretion of urinary steroids, and pulmonary function tests. After a control period during which treatment was limited to providing symptomatic relief, treatment with corticotropin was started. The patients were then discharged and treated with cortisone given orally, returning at frequent intervals for repeat pulmonary function tests. The pulmonary function tests included vital capacity and its subdivisions, maximum breathing capacity, residual volume, and the index of intrapulmonary mixing. Duplicate determinations of the functional residual volume were made and results were not accepted if there was a difference in excess of 3% of the mean values. These results were compared with predicted normal values for each patient. The degree of improvement seen in the pulmonary function of the eight patients was variable but striking; four patients showed normal pulmonary function at the end of the study; three were normal with the exception of an elevated residual volume; and one showed no change. In three patients in whom the residual volume remained elevated, symptoms of asthma were only in-

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completely relieved. It was found that there was a rapid improvement in the vital capacity, maximum breathing capacity, and index of intrapulmonary mixing with treatment, but the residual volume required somewhat longer periods of therapy to return to normal. It is believed that the changes in pulmonary function found in bronchial asthma are due to hyperinflation of the lungs occasioned by the bronchospasm encountered in this disease and that, with treatment sufficient to completely remove the bronchospasm, these changes are reversible.

Regressive Gigantic Bullous Pulmonary Emphysema in Tuberculosis of Adults. D. G. Alarcón. Gac. méd. México 85:73-86 (Jan.-Feb.) 1955 (In Spanish) [Mexico, D. F., Mexico].

Formation of gigantic pulmonary air bullae complicating isoniazid therapy, alone or in association with streptomycin and *p*-aminosalicylic acid, may develop in patients with severe forms of pulmonary tuberculosis, frequently bilateral. This complication has the following characteristics. A rapid clinical favorable response and radical clearing of the exudative and caseous pulmonary lesions observed in the roentgenogram follow the treatment. The cavities and potential pulmonary tuberculous lesions that show as dark spots in roentgenograms taken before the treatment are substituted in posttreatment roentgenograms by gigantic and small air bullae respectively. The bullae are delimited from one another by an extremely fine wall. They grow in large numbers and in groups during the stage of total removal of intracavitary material by isoniazid. Later, they diminish in size and many of them disappear. The air passes freely from the bronchi into the bullae. It can be observed in resected specimens of the lung involved by this complication that cavities turned into air bullae are deprived of intracavitary epithelium, which is replaced by a fine layer of connective cells. The pleural space is occluded. A man with a roentgen diagnosis of a severe form of pulmonary tuberculosis with cavitation was given four doses of Friedmann's vaccine and a total dose of 15 gm. of isoniazid, which was taken at irregular intervals for a period of time not precisely stated. A marked temporary improvement was followed by aggravation, during which a large number of air bullae were seen in the roentgenogram. The treatment consisted of streptomycin, isoniazid, and *p*-aminosalicylic acid in daily doses of 1 gm., 300 mg., and 12 gm., respectively, for the period of regression of the air bullae, about three months, in association with vasodilating drugs. After regression of air bullae, the doses of the drugs were diminished and given at longer intervals until clinical and bacteriological cure of the patient was effected. The author believes that formation of air bullae in the lung depends on several combined factors: (1) destruction of an area of the alveolar parenchyma, even if minimal; (2) free passage of air from the bronchi into the cavity or potential lesion by suction of the involved parenchymal area due to diminished expansion of the lung; and (3) perilesional and bronchial vascular spasm elicited by a sympatheticotonic action of isoniazid. Restoration of bronchial and pulmonary circulation favors regression of the air bullae. Prevention consists in giving isoniazid after a preliminary course of treatment with streptomycin and *p*-aminosalicylic acid and in administering vasodilating drugs in the course of isoniazid therapy. In the case reported by the author, the Friedmann's vaccine seems to have elicited a multiple focal necrotic reaction of pulmonary tuberculous tissues that potentiated the local ischemic action of isoniazid with consequent formation of the bullae.

The Diagnosis of Esophageal Carcinoma by Exfoliative Cytology, Including Two Cases of Cardiospasm Associated with Carcinoma of the Esophagus. M. I. Klayman. Ann. Int. Med. 43:33-44 (July) 1955 [Lancaster, Pa.].

Forty patients in whom pathological lesions of the esophagus were suspected underwent cytological examination by lavage with isotonic solution of three chlorides (Ringer's solution) using a Levin tube. Of the 40 patients, 20 had malignant growths, proved histologically in 18 and by surgical exploration in 2. According to roentgenologic findings, 13 of the 20 patients had malignant lesions, in 4 the roentgen diagnosis was doubtful, and in the remaining 3 the roentgen diagnosis was that of a nonmalignant growth. Esophagoscopic examination revealed malignant lesions in 15 of the 20 patients, and biopsy indicated malignant lesions in 12. In 19 of the 20 patients a correct diagnosis of malignancy was made with the aid of cytological examination using Rubin's modification of the Papanicolaou staining procedure. There were no false-positive cytological reports. It would appear from these observations that exfoliative cytology can detect carcinoma of the esophagus accurately and in cases in which radiology and esophagoscopy fail. Case summaries are presented of three of the patients with esophageal carcinoma that demonstrate clearly the contribution of exfoliative cytology in detecting unsuspected malignancy of the esophagus. Two of these three patients, a 55-year-old woman and a 68-year-old man, both of whom had cardiospasm, were treated for years by dilatations. In the case of the woman, the clinical course did not conform with that of most patients with esophageal carcinoma, and exfoliative cytology was the only diagnostic method that identified the malignancy. Although malignancy was suspected clinically in the man, the first objective evidence of its presence was gained by cytology. Exfoliative cytology in addition to radiographic and esophagoscopic examinations for the detection of malignancy should be performed annually and with each exacerbation of symptoms in patients with cardiospasm. The third patient, a 69-year-old man, presented the problem of differential diagnosis of jaundice. In view of the absence of esophageal symptoms and negative roentgenograms, a bile duct carcinoma was considered most likely. It is noteworthy that malignant cells were recovered from an unanticipated carcinoma of the esophagus. Although the patient was asymptomatic, metastases to the mediastinal nodes had developed. Benign lesions of the esophagus were found in 20 of the 40 patients, and all were correctly reported on the basis of cytological examinations.

Partial Eventration of the Right Diaphragm (Congenital Diaphragmatic Herniation of the Liver). A. Vogl and A. Small. Ann. Int. Med. 43:61-82 (July) 1955 [Lancaster, Pa.].

The occurrence of partial eventration of the right diaphragm with herniation of the liver is reported in three men between the ages of 62 and 78 and in three women between the ages of 49 and 63. In five of the six patients the more common type of partial eventration was observed with involvement of the anteromedian part of the right diaphragm. The following characteristic radiological features were found in these five patients. On fluoroscopy a semicircular or semioval, homogeneous, nonpulsating shadow of soft tissue density was seen in the right lung field, arising from the median portion of the diaphragm with a broad base or pedicle. It was situated close to the right cardiac border and filled the cardiophrenic angle. It became more prominent on deep inspiration when the lateral and dorsal portions of the diaphragm moved downward, while the convex segment either remained at the same level or perhaps even moved upward (paradoxical motion). The mass varied in size from that of an orange to that of a grapefruit. Radiographic studies demonstrated the location of the mass, its homogeneous nature, the sharp, convex, occasionally slightly scalloped outlines, and its continuity with the liver shadow. The sixth patient had the less common form of partial eventration in which the central portion of the right diaphragm is involved. The radiological findings were the same as in the other five patients except for the location of the masses atop the dome of the hemidiaphragm. These observations are virtually diagnostic of partial eventration of the right diaphragm with herniation of liver into the diaphragmatic pouch ("superior accessory lobe" of the liver). If unequivocal confirmation of this diagnosis is desired, it may be obtained by intraperitoneal insufflation of 250 to 1,000 cc. of air, which produces separation of the diaphragm and the liver by a translucent zone of gas. Although artificial pneumoperitoneum was carried out in four of the authors' patients, it must not be considered a routine diagnostic procedure for this type of condition, since simple fluoroscopic and radiographic examination will permit a reasonably certain diagnosis in most cases. Partial eventration of the right diaphragm was observed by other workers in adults and in children. The authors' observations corroborated the impression of others that, as a rule, the condition is an incidental finding, entirely innocuous and not the cause of symptoms. It is therefore almost invariably detected during a routine examination or in the course of investigations of symptoms caused by some other disease, such as ovarian carcinoma with widespread metastases or chronic duodenal ulcer in two of the authors' patients. Aplasia of the diaphragmatic muscle in an area derived from the embryonic septum transversum is offered as a possible explanation for the more common type of hernia of the right diaphragm that is known to exist at birth and is found regularly at the same location. The term congenital diaphragmatic herniation of the liver is suggested as most appropriate for the condition.

Medical Treatment and Prognosis of Ulcerative Colitis. A. Fieschi and F. Cuneo. Minerva med. 46:1171-1174 (April 25) 1955 (In Italian) [Turin, Italy].

The causative factor of ulcerative colitis is still unknown, and attempts to reproduce the condition experimentally have failed. Its frequent association during the last years with allergic states and the prompt, though transitory, response to cortisone and corticotropin therapy seem to support the theory of its being a phenomenon of local hypersensitivity of the Schwartzmann type. Because of its unknown etiology, treatment has to be symptomatic and individualized. General treatment includes blood transfusions, which in some instances are extremely useful, and the administration of liver extracts, liver-protecting preparations, amino acids, insulin, and multiple-vitamin preparations. Complete rest in bed and hospitalization are necessary during the acute phase of the disease, and in severe cases the diet should be integrated with the intravenous administration of amino acids and sugars. Antibiotics and sulfonamides should be used with caution, in order not to modify too markedly the normal bacterial flora of the intestine. The therapy should be discontinued only if a true improvement in the number and character of movements and in the general condition is observed. Oral administration of antibiotics may cause severe damage, such as manifestations of hemorrhagic enteritis, and the eventual formation of resistant strains. Clinical improvement has been obtained with cortisone and corticotropin, but it was not accompanied by adequate anatomic modifications, and in most instances the remission was partial and transitory only. In severe cases the administration of corticotropin may cause peritonitis owing to intestinal perforation. Better results have been obtained with sulfonamides. Recently salicylazosulfapyridine (Azulfidine) has proved greatly beneficial in average doses of 1 gm. given orally four to six times daily. In many cases, psychotherapy can be extremely useful, although it has never resulted in complete recovery. Prognosis of the medical treatment of ulcerative colitis depends on the remissions that are obtained. In general, the results are not too encouraging and no particular drug has proved especially beneficial. If a remission is followed by repeated acute and severe relapses, the prognosis is poor, medical treatment should be discontinued, and surgery should be resorted to.

Use of Fructose in Diet and Treatment of Patients with Diabetes Mellitus. R. Klinger and P. Dalle Coste. Minerva med. 46:1389-1392 (May 16) 1955 (In Italian) [Turin, Italy].

The utilization of fructose by patients with diabetes mellitus was studied by (1) administering both fructose and glucose to a group of patients and comparing the blood sugar levels and the urine values of the two substances; (2) adding a certain quantity of fructose to the diet of the patients and administering insulin in fixed doses; (3) substituting carbohydrates of the standard diet with fructose; and (4) resubstituting the fructose, after several days of administration, with carbohydrates. The results indicated that fructose is utilized very rapidly by the patients even after a prolonged administration of large doses of it. However, it is utilized by these patients at a much slower rate than it generally is by healthy persons. It is useful in large amounts if it is given in divided doses in addition to, or as a substitute for, other carbohydrates. It results in weight gain, decrease of the patient's need for insulin, and improvement in his general metabolic condition. Its administration can be a true therapy for patients with conditions secondary to diabetes mellitus (acidosis and renal and myocardial impairment) as well as for those with intercurrent diseases, when diet and drugs are not beneficial. In such instances the intravenous route of administration can be used, because large quantities of sugar can thus be given, provided the rate of administration is checked to avoid reaching the renal threshold too quickly. The results of this series of studies indicated that fructose, which is easy to administer and definitely devoid of dangers, is useful for patients with diabetes mellitus.

Comparative Life Expectancy of Hypertensive Patients with Surgical and Conservative Therapy. K. G. Pfeffer, H. Nieth and H. Schneider. Deutsche med. Wchnschr. 80:956-958 (June 24) 1955 (In German) [Stuttgart, Germany].

The authors compared the length of survival five or more years after operation in 206 hypertensive patients who underwent sympathectomy with that in 306 patients who received conservative treatment, that is, a diet with a restricted salt content, sedatives, and blood-pressure–reducing drugs. As regards the severity of hypertension the following groups were differentiated. Those of group 1a had relatively slight increases in the systolic and diastolic pressures, the eyeground changes were slight, there were no cerebral changes, and the renal function was normal. In those of group 1b the systolic and, particularly, the diastolic pressure showed a more pronounced increase, and there were circulatory disturbances particularly in the eyegrounds and in the brain. Group 2a included the hypotensive patients with arteriosclerotic changes (sclerosis of the central arterial system, with apoplexy, coronary sclerosis, and aortic sclerosis). Group 2b included those with malignant hypertension with or without renal impairment and with progressive functional and organic changes in the arterial system. The late phases of malignant hypertension with renal insufficiency were classified as group 2c. The results of sympathectomy were especially favorable in the early forms of so-called malignant hypertension (group 1b), that is, of 39 who were subjected to sympathectomy, 36 were still alive after five years, whereas, of 56 patients with this form of hypertension who received conservative therapy, only 32 were alive after that period. Similar differences were observed in the more advanced forms of malignant hypertension (group 2b). More than a third of those treated surgically but only about a sixth of those treated with conservative measures survived more than five years. Surgery did not, however, improve the life expectancy of patients with the late forms of malignant hypertension. Sympathectomy produced no improvement in the patients with advanced sclerosis of the vessels. Uremia was the cause of death less often in those who had undergone sympathectomy than in those who had received conservative measures.

Essential Hyperlipaemia. R. A. Joske. M. J. Australia 1:826-831 (June 4) 1955 [Sydney, Australia].

Joske reviews the literature on essential hyperlipemia and presents the clinical features of seven additional patients, one man and six women, whose ages ranged from 30 to 63 years. Five patients had a family history of cardiac disease and one of cholelithiasis. Skin nodules were present in four patients and tendon nodules in one. Four patients had hepatomegaly and one splenomegaly, while five had pancreatitis and two had cholelithiasis. Vascular disease was present in two patients, one of whom developed status anginosus. One patient had probable pituitary lesions and mild diabetes mellitus. All patients had persistent hyperlipemia, although its degree varied greatly. Four patients also had hypercholesteremia. Treatment by a diet of low-fat content did not invariably reduce the blood lipid content. A prolonged course of heparin treatment in one patient with status anginosus affected neither the clinical nor the biochemical findings. Essential hyperlipemia is considered to be a genetically determined anomaly of metabolism, manifested by a family history of vascular disease, pancreaticobiliary disease or diabetes mellitus. The clinical symptoms include xanthomas of skin or tendons, particularly xanthelasma; variable hepatosplenomegaly; pancreatitis; cholelithiasis; atherosclerosis; and diabetes mellitus. Biochemical investigation shows persistent hyperlipemia due to an increase of neutral fats and sometimes of cholesterol and phospholipids. Treatment at present is dietetic and symptomatic, but its efficacy is not certain.

Leptospirosis in Israel: Clinical Forms and Problems of Treatment. K. Marberg. Harefuah **48**:235-240 (June 1) 1955 (In Hebrew, English Abstract,) [Jerusalem-Tel Aviv, Israel].

A study of 196 cases of leptospirosis observed in Israel during the last five years gave the following results: 95% of the cases were caused by Leptospira grippotyphosa and 5% by Lept. canicola. Jaundice appeared in 70% of all cases. This contrasts with the anicteric course of leptospirosis due to Lept. grippotyphosa in Europe. The local disease is therefore more similar to classical Weil's disease. Icterus was present in 45% of the small group of Lept. canicola cases. Renal symptoms were found in 50% of the cases and in one-third the full hepatorenal syndrome appeared. Only a few meningeal cases were observed, among them three cases of primary aseptic meningitis. The disease was not very severe. The single fatal case was due to Lept. canicola. Antibiotic therapy with penicillin, aureomycin, and terramycin did not give clear-cut results, although in certain severe cases terramycin appeared to shorten the febrile period. Patients with severe hepatorenal disturbances require therapy of lower nephron nephrosis.

Case of Favism. N. A. Bolt. Nederl. tijdschr. geneesk. **99**:1651-1655 (June 4) 1955 (In Dutch) [Haarlem, Netherlands].

Bolt presents the history of a 3-year-old boy, whose mother noted one day that he became very quiet, though ordinarily he was lively, that his skin was yellow, and that he became drowsy and fell asleep. He was fed on awakening but he vomited, and his urine was brownish-black. Abdominal pain developed and recurred after another period of sleep. Examination suggested a sudden severe hemolysis. Poisoning, possibly with the insecticide parathion, was thought of, but the clinical picture differed from parathion intoxication. After a transfusion of 300 cc. of blood and other measures, the boy recovered. The true cause of the hemoglobinemia and hemoglobinuria was not ascertained until the author read A. H. Becker's report (*J. A. M. A.* **155**:1158 [July 24] 1954) on the treatment of favism with cortisone. It was then recalled that fava beans (Vicia faba) were among the foods consumed by the child before the onset of his illness and that his symptoms corresponded to those of favism, which is an allergic form of hemolytic anemia caused by contact with the pollen, or by ingestion of the seed, of the fava bean.

SURGERY

Experiences with the Beck Operation for Coronary Artery Disease. M. W. Selman. Dis. Chest **28**:1-20 (July) 1955 [Chicago].

Experiments carried out on dogs provided ample evidence that the Beck 1 operation will protect the heart against death from ventricular fibrillation and will prevent ischemic areas responsible for angina. The Beck 1 operation is a one stage procedure that consists of four steps: (1) partial ligation of the coronary sinus; (2) abrasion of the epicardium and pericardium; (3) application of asbestos powder over the surface of the heart; and (4) approximation of a pedicle of mediastinal fat to the heart. Selman participated in the performance of this operation by Beck on 31 consecutive patients with coronary artery disease. There were no operative or immediate postoperative deaths. Of 32 consecutive patients who underwent this operation and were followed up postoperatively for at least six months, the cardiac status was excellent in 10 who were able to perform full-time work with little or no pain; the cardiac status was good in 12 who were able to perform full-time or part-time work with significant reduction in pain; 6 patients were able to perform more work than before the operation with some diminution of pain; and 4 patients were therapeutic failures. The fact that 87.5% of the patients operated on were improved and 69% had obtained excellent or good results shows the effectiveness of the operation. The number and size of myocardial infarcts after coronary occlusion were significantly reduced in dogs protected by the Beck 1 operation. The Beck operation cannot stop degenerative and occlusive disease in the coronary arteries. The Beck procedure cannot restore degenerated myocardium and is therefore contraindicated in patients in whom destruction of the myocardium from infarcts has resulted in myocardial failure. The occlusive coronary artery disease may be so rapidly progressive that it overtakes the benefit derived from the operation. The Beck operation results in an increase in the intercoronary and extracoronary communication, thereby augmenting the natural tendency of the heart to increase blood supply to the myocardium following coronary occlusion or narrowing. There is ample experimental and clinical evidence to warrant the widespread application of the Beck operation to properly selected patients with coronary artery disease.

Factors Influencing the Late Results of Mitral Valvuloplasty for Mitral Stenosis. L. B. Ellis and D. E. Harken. Ann. Int. Med. **43**:133-142 (July) 1955 [Lancaster, Pa.].

Of 500 patients undergoing mitral valvuloplasty for predominant mitral stenosis without important associated disease, 13 had been classified as group 2 patients who had some impairment of function, usually dyspnea, which was not progressive; 342 were group 3 patients with chronic dyspnea or repeated attacks of acute dyspnea or pulmonary edema; and 145 were group 4 patients most of whom had had chronic congestive failure. Patients who presented a murmur of mitral stenosis but had no significant symptoms were classified as group 1 patients and were not subjected to valvuloplasty. There were 58 operative deaths. The operative mortality in groups 2 and 3 is now less than 3% and appears to be below 1%. It is 20% in group 4. Two patients were lost to follow-up, and 440 were followed up for an average of 22 months. Of the 440 patients, 343 (78%) showed significant and usually persistent improvement. The factors that led to less good results were (1) age over 40; (2) auricular fibrillation; (3) associated aortic valve disease; (4) associated mitral insufficiency of moderate degree or more; (5) a preoperative valve size of more than 1 square centimeter; (6) a postoperative valve size of less than 2.5 square centimeters; and (7) calcification of the mitral valve. Even in the less successful categories the over-all results were still good in most of the patients. Poor late results occurred in direct proportion to the number of adverse factors present. Mitral valvuloplasty appeared to protect against late peripheral embolization, although the incidence of operative emboli was somewhat greater in patients who had had previous emboli than in the group as a whole. Good end-results depend on intelligent and careful selection of patients and on the quality of the valvuloplasty performed by the surgeon.

Pulmonary Resections in the Light of Functional Tests. G. Vargha. Ztschr. Tuberk. **106**:154-161 (No. 3) 1955 (In German) [Leipzig, Germany].

Pulmonary resections produce irreversible changes, and it is essential that as much functioning tissue as possible be preserved. The author surveys the functional factors that must receive attention in pulmonary resections, discussing these factors on the basis of literature reports and of his own observations. He investigated the respiratory capacity before operation, during the postoperative period, and after the respiratory function had become stabilized again. In more than 200 preoperative examinations and in 100 control tests after resections, he found that pneumonectomy reduced the vital capacity by an average of 13% and the maximum breathing capacity by 10%. Lobectomy reduced the vital capacity by 7% but did not alter the maximum breathing capacity. Segmental resection caused on the average an 8% reduction in vital capacity and a 1% reduction in the maximum breathing capacity. The author also found that complications caused a much greater impairment in pulmonary ventilation than is indicated in the average values. When, after ineffective collapse therapy, lobectomy was combined with decortication or when a lobe was resected that contained a residual cavity, then lobectomy produced only a minimal loss in ventilatory capacity, or it even improved ventilation.

Cavernolithiasis. K. Kivikanervo, H. Laitinen and M. Wäre-Niskanen. Ann. chir. et gynaec. Fenniae 44:1-9 (No. 1) 1955 (In English) [Helsinki, Finland].

In the course of radiological examinations carried out at their clinic, the authors discovered three patients whose lungs exhibited sharply outlined opacities of varying sizes and shapes. In two patients the opacity was within a tuberculous cavity, and in the third, the fragment had apparently moved from the cavity into the communicating bronchus and had become wedged there. The authors designate these fragments cavernoliths, a term used by Cooley in 1953. The authors were able to find only one other report on this condition besides Cooley's, that by Nagel and Hoppe in 1954. Cooley believed that cavernoliths are due to the eruption of parenchymal, caseous, and partly calcified foci into a bronchus; a cavity is formed and larger calcified fragments, which do not pass through the bronchus, remain in it. The authors are inclined to think that the formation of cavernoliths can also take place later, as a result of calcification of pus inside an open cavity. It has also been suggested that cavernoliths may simply be Simon's foci remaining within the cavity after the destruction of the surrounding pulmonary parenchyma. The authors feel that one of their cases indicated such a causation. As regards the diagnosis, they found that laminograms provided a good view of the cavernoliths. Their own experience with collapse therapy (thoracoplasty in two cases and pneumothorax in another) convinced them that complications are likely to result. They agree with Cooley that resection is the only therapeutic measure promising satisfactory results.

Surgical Considerations in Pulmonary Coccidioidomycosis: Report of 100 Cases. B. H. Cotton, G. A. Paulsen and J. W. Birsner. Am. J. Surg. 90:101-106 (July) 1955 [New York].

Complications of pulmonary coccidioidomycosis are now a problem throughout the nation. During the second World War and during the Korean War, millions of troops were in endemic areas, and there has been a rapid postwar expansion of populations in endemic areas. The following complications of pulmonary coccidioidomycosis may occur as sequelae of the acute infection: extreme hilar adenopathy, coccidioma, pleural effusion, bronchiectasis, fibrosis, cavitation, and dissemination. One of the authors reviewed 750 cases of pulmonary coccidioidomycosis, nearly all of which were observed during the past decade in Kern County, Calif. Surgical treatment was employed in 100 of the 750 patients. From medical observation on these 100 patients, endoscopic examinations, surgical findings, and reviews of pathological specimens, the authors evolved the following indications for operations: (1) giant cavity; (2) secondarily infected cavity; (3) check-valve cavity; (4) ruptured cavity (pleural effusion, spontaneous pneumothorax, empyema, bronchopleural fistula, nonexpansile lung); (5) coccidioma; and (6) continued or severe hemoptysis. The authors comment on these different indications. Once the acute phase of the disease has passed, the risk of dissemination following surgery is almost negligible. The authors have seen cavities close during the first six month period but never after six months, and so they believe there should be a six month interval between resolution of the acute stage and surgical treatment. Attempts are made to localize the cavity before operation in order to ascertain whether or not localized resection will be possible or whether lobectomy will have to be performed. A bronchogram is always done next, for in many cases bronchiectasis was found associated with the cavity or within the area of infection. After the bronchographic examination, the authors wait six weeks before resorting to surgical treatment, which is carried out in the same manner as for other pulmonary lesions. The diagnosis was always confirmed either before or after the operation by one or more of the following procedures: complement fixation test, sputum examination, culture, animal inoculation, or histological examination. The operation was successful in all but three of the patients. One patient died during the postoperative period, and in two patients further cavities developed, which required second operations. One patient's second cavity was of tuberculous origin. The other patient's was coccidioidal; apparently either a small cavity was missed at the time of surgery or a small coccidioma "shelled out" to become a large cavity. It may prove easier to make a diagnosis of coccidioidomycosis in vivo than by examination of the pathological specimen. The coccidioidal cavity allows recovery of spherules from the sputum during the acute phase of the disease, but it may lose its identity due to superimposed infection by tubercle bacilli or pyogenic organisms. "Masking" of this type may explain pathologists' reports of a "granuloma of unknown etiology." The authors feel that resection for pulmonary coccidioidomycosis may prevent death and is effective in arresting the disease process. The decision to resort to surgery should be based on mechanical considerations, with complete disregard for the etiological agent, Coccidioides immitis. The coccidioidal cavity is, like lung abscess or bronchiectasis, an operable condition.

Pulmonary Histoplasmosis. T. F. Puckett. Am. J. Surg. 90:92-100 (July) 1955 [New York].

Histoplasmosis is a highly infectious mycosis caused by Histoplasma capsulatum and presents a variety of clinical, pathological, and roentgenologic manifestations. The usual route of infection is the respiratory passage giving rise to primary foci within the lungs. Histoplasmosis has a tendency to occur in epidemics following exposure in heavily contaminated areas by groups of persons. There is evidence that a chronic active form of pulmonary histoplasmosis exists that closely mimics pulmonary tuberculosis. Some of these cases may be reinfection histoplasmosis. Chronic pulmonary histoplasmosis is intermediate between uncomplicated primary histoplasmosis and widely disseminated histoplasmosis. It is also the form that appears to be amenable to surgical therapy. The series reviewed consists of 67 patients from which pulmonary tissue, hilar nodes, or both were removed and H. capsulatum identified in the resected material. The disease process seemed to have become stabilized in all these patients and is probably best classified as healed or healing primary histoplasmosis. All patients had a history of residence in endemic areas, and almost half were in the age group 21 to 30 years. Many were admitted to an Army hospital with a diagnosis of "tuberculoma" and others with "coin lesion" of the lung. A presumptive diagnosis of histoplasmosis was made in several patients who were asymptomatic and were positive reactors to intradermal histoplasmin and negative reactors to intradermal coccidioidin and tuberculin. There were 31 patients who were completely asymptomatic and in whom the lesions were found by routine chest roentgenograms taken for reenlistment, annual physical examinations, or in connection with investigation of complaints other than those referable to the pulmonary system; 8 patients complained of malaise, easy fatigue, and weight loss; 8 had blood-streaked sputum; one had two bouts of hemoptysis; 8 had fever associated with symptoms referable to the upper respiratory tract; 10 complained of transient pleural pain; 15 estimated their onset to coincide with a rather mild but prolonged upper respiratory infection; 5 presented the typical symptoms and clinical findings of a middle lobe syndrome; and in 4 patients the lesions were incidental findings in pulmonary tissue removed for the treatment of other conditions. Complement fixation tests were negative in 15 of 30 patients, and the collodion agglutination test was negative in 23 of the same 30 patients. The intralobar location of the lesion was ascertained in 64 of the patients. This author had previously mentioned the difficulties in identifying H. capsulatum in focalized lesions, and on the basis of further studies he emphasizes that organisms cannot be identified in necrotic foci when sections are stained with hematoxylin and eosin. The periodic acid-Schiff stain as modified by Kligman and Mescon has proved to be a most satisfactory procedure. Unfortunately, it is not specific for cytoplasm and it is therefore frequently necessary to use the oil immersion lens for confirmation, as concretions, cellular inclusions, and other artifacts may simulate H. capsulatum. A complete history and the response to intradermal antigens should be known when tissues from granulomatous lesions are examined. Classically, H. capsulatum has been described as an intracellular inhabitant, but that is not the case with organisms found in the central necrotic portions of granulomas. In the older lesions the organisms may assume a somewhat atypical morphology, and attempts to culture them from resected lesions have been disappointing. The author believes that the organisms in the stabilized residual foci are generally nonviable.

Bilateral Resection Therapy in Pulmonary Tuberculosis. J. K. Kraan. Dis. Chest **28**:44-58 (July) 1955 [Chicago].

The author subjected 14 patients with bilateral pulmonary tuberculosis, in whom the disease was confined to at most two segments of each lung, to bilateral resection. The first operation was carried out on the side on which there was the least risk of loss of function. Should a complication arise in the second operation, the danger for the patient would thus be minimal. Surprisingly good results were obtained with bilateral resection in the first six patients, who have resumed their occupations after eight months of postoperative treatment in the sanatorium. These were all young persons between the ages of 21 and 31, who, even though their tuberculosis was only slightly active, were socially incapacitated because of the presence of tubercle bacilli in their sputum, as was revealed by preoperative weekly examinations of their expectoration. It is impossible to say with absolute certainty that they are permanently cured, but this is true for every recovered tuberculous patient. The most important tuberculous foci have been removed, and it is to be expected that, with prolonged after-treatment and a sensible way of living, they have a reasonable chance of gaining the fight against the pathogenic agent with their own defense powers. It was of great importance that the resection was always as selective as possible and that it was always possible to carry out segmental resection except in one patient in whom the whole upper lobe including the lingula had to be removed. This may be the explanation for the slight loss of function that was observed in the author's patients. The total loss of vital capacity and of maximum respiratory minute volume after successful lobectomy is sometimes not much greater than after segmental resection because it is possible that after the latter intervention the spared portions of the lobe participate little in the ventilation and gas exchange. The author believes that, when the expansion of the lung is good, as it was in his patients, these portions are still of significance and the loss of oxygen uptake of the operated lung can be small. Determinations of pulmonary function after uncomplicated bilateral resections in three of the six patients revealed a slight drop of vital capacity varying from 1.4 to 3.6%, while the maximum respiratory minute volume was reduced by 3.1 and 3.6%, respectively, in two of the patients and was increased by 9.1% in one patient. It is this slight loss in pulmonary function that makes the author believe that, in patients with a localized bilateral tuberculous process, resection therapy constitutes the only possibility of obtaining clinical cure with complete restoration of work capacity.

Adrenal Cortical Hyperfunction (Cushing's Disease): Clinical and Biochemical Study: Results of Subtotal Bilateral Adrenalectomy. J. Decourt, E. Baulieu, J. P. Michard and J. Lerner. Presse méd. **63**:951-954 (June 22) 1955 (In French) [Paris, France].

A particularly malignant syndrome of adrenal cortical hyperfunction (Cushing's disease) with early arterial hypertension was seen in a woman aged 29. First clinical signs appeared abruptly five months after termination of a normal pregnancy, her third, at the time of weaning of the infant. A thorough biological study showed slight increase in the 17-ketosteroids, bearing electively on Jayle's C fraction (17-ketosteroids oxygenated in 11); high elevation of the corticoids as measured by different methods (Heard-Sobell, Gornall, Porter-Silber reactions); slight increase in the glycuroconjugated and sulfoconjugated neutral steroids; and normal amounts of estroids. The patient received five sessions of pituitary roentgen irradiation, with no effect. Then the left adrenal gland was removed almost in its entirety, resulting in no clinical improvement but a transient improvement in the hypertension. A month later about half the right gland was removed, with dramatic improvement. Histological examination of the two glands revealed diffuse spongiocytic hyperplasia of the cortex. Several weeks after the second intervention, signs of postoperative adrenal cortical insufficiency appeared, in the form of eczematous eruptions, arthralgia, abdominal pain, and vomiting. These were successfully treated with cortisone. Biological examination four months after operation showed a permanent decrease in the 17-ketosteroids to about 1 mg., subnormal amount of corticoids, and feeble response to the intravenous infusion of corticotropin. Eight months after the operations the patient was seen to be in good health. She had gained in weight; the facies, skin color, and blood pressure were normal; menstruation had reappeared; and psychic balance was restored.

Endoscopic-Transthoracic Approach in Surgical Intervention on Autonomic Nervous System According to Kux. F. Rosenauer. Wien. med. Wchnschr. **105**:524-526 (June 25) 1955 (In German) [Vienna, Austria].

Endoscopic-transthoracic exclusion of the sympathetic and vagus nerves using Kux's technique (*J. A. M. A.* **147**:1076 [Nov. 10] 1951) was carried out by Rosenauer in 300 patients with various disorders such as hyperhidrosis of the hands and the face, essential hypertension, postcholecystectomy syndrome, disturbances of circulation and phantom pain in the upper extremities, causalgia, duodenal ulcer, angina pectoris, and severe spastic constipation. Illustrative cases are reported. Three patients, a stenotypist, a nurse, and a clerk, with severe hyperhidrosis of the hands, obtained dry, warm hands from bilateral division of the upper thoracic sympathetic chain. In two patients, hyperhidrosis of the face of several years' duration subsided completely after division of the sympathetic nerve distal to the stellate ganglion. Bilateral endoscopic division of the thoracic sympathetic chain and of the splanchnic nerves at several points was carried out in a patient with essential hypertension associated with vertigo, headache, and complete loss of sense of taste. Follow-up after two years showed a maximal systolic pressure of 190 mm. Hg as compared with 240 mm. Hg before the operation. The patient had regained his sense of taste, and headache and vertigo did not recur. Of five patients with postcholecystectomy syndrome, two obtained complete freedom from their symptoms as a result of splanchnicotomy on the right side, and the other three were considerably improved. In a 70-year-old farmer, endoscopic division of thoracic sympathetic chain distal to the stellate ganglion, approximately at the level of the second rib, resulted in complete cure of refractory excruciating phantom pain occurring 30 years after amputation of the right upper arm. The author's results obtained with Kux's technique in 53 patients with duodenal ulcer were less satisfactory than those reported by Kux himself. Bilateral division of vagus and of sympathetic fibers is indispensable, but a definite disadvantage of the endoscopic division of these nerves in patients with duodenal ulcer is the fact that surgical intervention is carried out in the pleural space and that one does not know definitely whether the diagnosis of conditions in the abdomen is not erroneous. In very young patients with duodenal ulcer and in those in whom the roentgen findings do not seem to justify resection and who have severe pain refractory to conservative therapy, Kux's technique should be employed and may yield satisfactory results in 55% of the patients. Two patients with highly refractory constipation caused by permanent spasm of the left portion of the colon had regular bowel movements every day or every second day after endoscopic division of the left vagus nerve. It has been possible in many patients to interrupt rapidly, without major surgical intervention, the waves that pass from the autonomic nervous system to the organs, or from the organs through the fibers of the autonomic nervous system to the central nervous system, and for this reason the method becomes indispensable when the autonomic nervous system is considered more and more as the cause of organic diseases.

Congenital Aganglionic Megacolon. H. Axelrod. Am. J. Surg. **90**:18-25 (July) 1955 [New York].

Axelrod reviews the history of investigations on the pathogenesis and treatment of congenital aganglionic megacolon, also known as Hirschsprung's disease. The disease is in the distal, undilated portion of the large intestine, rather than in the dilated portion, which contributes the word megacolon to the designation of the disease. The dilated portion of the intestine, with its greatly increased lumen, thickened wall, and elongation represents the reaction of a normal bowel to a chronic obstruction distal to it. In the narrowed segment distal to the dilated portion of the colon, the ganglions of Auerbach's plexus are absent but nerve fibers are present, which are nonmyelinated and lie where Auerbach's plexus would normally be situated. When the nerve impulse from the proximal, normal portion reaches this part of the bowel, an intense spastic contraction takes place, the lumen of the bowel is greatly contracted, the normal peristaltic wave reaching it is ended, and with it the forward propulsion of the bolus. Feces are packed into the first portion of the narrowed part of the bowel. This part of the fecal stream can move forward only by sufficient push from the propulsive efforts of the bowel orad to it. Meanwhile, though the aganglionic part of the bowel is incapable of peristaltic function, its other functions are not impaired. Water absorption from the feces continues, and as it does the feces become drier and harder. With the feces now backing up into the normal bowel, dilatation of the latter occurs. If the blockage is complete, acute intestinal obstruction results. The diagnosis of congenital aganglionic megacolon is not too difficult. Obstinate constipation becomes apparent at or shortly after birth. These children will have bowel movements so long as enemas are given, but despite the administration of enemas the overwhelming majority of children will appear with a greatly distended abdomen. When acute intestinal obstruction occurs and is complete, laparotomy will be necessary, with the shortest possible procedure consistent with saving the patient's life. This will usually consist of a transverse loop colostomy proximal to the contracted segment. The author describes Swanson's curative operation with Hiatt's modification, which consists of removal of the entire narrowed, distal segment, the transitional area and a variable part of the distal dilated part of the colon. The author presents the histories of two children, a 6-year-old boy and a 2½-year-old girl who were treated by this operation, which illustrate the excellent results that can be achieved by operative correction of this congenital anomaly.

NEUROLOGY & PSYCHIATRY

The Clinical Syndrome of Aneurysm of the Middle Cerebral Artery. K. Frankel and B. J. Alpers. A. M. A. Arch. Neurol. & Psychiat. 74:46-67 (July) 1955 [Chicago].

Aneurysm of the middle cerebral artery has usually been detected at autopsy. The authors analyzed 12 cases of aneurysm of the middle cerebral artery verified at operation or autopsy in order to define the clinical syndrome and to determine the criteria whereby the diagnosis may be established before rupture. They surveyed the literature and located 129 cases, but the records of only 75 were found to be sufficiently complete to warrant inclusion for study. Data on the two groups of patients are analyzed and compared. In the cases reported in the literature the majority of patients were 20 to 50 years of age, whereas in the 12 patients presented here the ages ranged between 30 and 59. Men predominated. In the majority of patients, symptoms were of less than one week's duration, but in some they had been present for from one month to 15 years. The clinical syndrome of aneurysm of the middle cerebral artery prior to rupture is ill-defined. In the series here reported the only symptom of significance prior to rupture consisted of headache of a nonspecific character. This was true also of the cases recorded in the literature. Seizures were recorded in a few instances and transient weakness in others. In the great majority of recorded instances of aneurysm of the middle cerebral artery, the diagnosis has been made after rupture. The onset under these circumstances has usually been with loss of consciousness, often with focal or generalized seizures, and hemiplegia. Neurological examination has usually, but not always, revealed hemiparesis or hemiplegia, at times changes in the fundi, occasionally hemianopsia, and a scattering of other findings. Signs of meningeal irritation were frequent, due to subarachnoid hemorrhage. The spinal fluid usually contained red blood cells or was xanthochromic, and the pressure tended to be elevated. Little information was obtained from radiological studies. It is not possible to indicate a group of symptoms that could be regarded as significant for diagnosis prior to rupture. It is only possible to state that in patients with long-standing, unexplained headache, with occasional seizures and transitory episodes of hemiplegia or aphasia, the possibility of aneurysm of the middle cerebral artery should always be considered and arteriography performed. After rupture it is not always possible to be certain whether the symptoms result from aneurysm, hemorrhage into a tumor, or cerebral hemorrhage of hypertensive origin.

Reserpine in the Treatment of Psychotics with Convulsive Disorders. J. A. Barsa and N. S. Kline. A. M. A. Arch. Neurol. & Psychiat. 74:31-35 (July) 1955 [Chicago].

The value of reserpine, a crystalline alkaloid from the root of Rauwolfia serpentina, in the treatment of disturbed psychotics has been shown in previous studies. Since there was an indication that patients with convulsive disorders did not respond to treatment as well as the others and since at times the incidence of convulsive seizures seemed to be increased, three groups of patients with convulsive disorders were studied. The first group included 11 schizophrenic patients with occasional convulsive seizures, which in all but two of the patients had begun late, that is, between the ages of 25 and 55. The second group included 25 patients whose mental symptoms were believed to be secondary either to epilepsy or to mental deficiency. Convulsive seizures in all of these patients began in early life and occurred more frequently than in the first group. All, with but one exception, required anticonvulsant medication. The third group included seven schizophrenic patients who had undergone various forms of psychosurgery (three, topectomies, and four, prefrontal lobotomies) and who had had convulsive seizures at some time following the operation. None of these patients received anticonvulsant medication at the time of this study. At the onset, reserpine therapy was given orally and intramuscularly, but for maintenance oral therapy was used. It was found that reserpine therapy is not as effective in psychotic patients with convulsive disorders as in psychotics without convulsive seizures. In the former the maximum therapeutic effect to be expected is usually one of sedation. There is an increased incidence of convulsive seizures during the first six weeks of therapy. In treating epileptics with reserpine, it is recommended that therapy be begun with small oral doses and that the dosage be built up gradually. Intramuscular administration of reserpine is not necessary in most cases. Finally, in termination of therapy, the drug should be withdrawn very gradually lest convulsive seizures be precipitated. The question arises as to why the mental symptoms of patients with convulsive disorders did not respond so well to therapy as did those of patients without convulsive seizures. The explanation may be that in the former the mental symptoms, like the seizures, are organically determined and, therefore, not as amenable to drug therapy. Another point to consider is that the paranoid element was usually predominant in the symptomatology of these patients with convulsive disorders, and this symptom is known to be particularly resistant to all forms of therapy.

Peritoneal Shunts in the Treatment of Hydrocephalus and Increased Intracranial Pressure: Four-Year Survey of 62 Patients. I. J. Jackson and S. R. Snodgrass. J. Neurosurg. 12:216-222 (May) 1955 [Springfield, Ill.].

Increased intracranial pressure in patients with hydrocephalus can sometimes be successfully relieved by shunting the excess cerebrospinal fluid from the lumbar subarachnoid space or the ventricles into the peritoneal cavity through a catheter. This method has been used in 62 patients ranging in age from 3 days to 65 years, studied over a period of four years at the University of Texas. A plastic tube with several side vents is introduced either into the right lateral ventricle or the left lumbar subarachnoid space and is fixed in position. Its free end is threaded subcutaneously, either downward on the anterior surface of the trunk for a ventriculoperitoneal shunt or around the trunk to the left lower abdominal quadrant for a lumbar-peritoneal shunt, and the peritoneal cavity is then opened to receive the tube. During the last 18 months, the opening has been made over the liver, instead of lower down, and the tube has been placed over the dome of the liver and fastened to the falciform ligament by a suture. Blocking and kinking of the tube were frequent complications, and in many cases the failure of the tube to function led to a recurrence of the initial symptoms and necessitated reoperation. A second operation was also needed in some of the children because they outgrew the original tube. The total number of operations in these 62 patients, therefore, was 116. One patient was lost to follow-up; 20 died with increased intracranial pressure, although in none of these was the death a direct result of the operation; and 12 others died from various causes, but their intracranial pressure was not increased. Some of the shunts are working and necessary for life; others are now obviously neither working nor necessary, indicating that a temporizing procedure may occasionally tide the patient over until he is able adequately to absorb his excess cerebrospinal fluid. The 29 surviving patients include 22 who are free from increased intracranial pressure and 7 in whom the pressure is now increased in spite of one or more shunting operations. Experience with peritoneal shunts shows that the longer the patients are followed, the poorer the long-term results become; thus only 39% of these patients have received long-term benefit, but, since only two of those with successful shunts are not leading useful or relatively normal lives, the shunting procedure should be regarded as having a certain limited value.

The Use of Hypothermia in Surgical Treatment of Cerebral Vascular Lesions: Preliminary Report. W. M. Lougheed, W. H. Sweet, J. C. White and W. R. Brewster. J. Neurosurg. **12:**240-255 (May) 1955 [Springfield, Ill.].

Experience with two patients subjected to intracranial surgery under hypothermia at the Massachusetts General Hospital in December, 1953, shows that hypothermia protects the brain from anoxia and makes it possible to occlude the cerebral circulation for periods of as much as 14 minutes and 25 seconds without injury. The first patient, a 45-year-old man with a recurrent glioblastoma of the right cerebral hemisphere necessitating hemispherectomy, had an uneventful postoperative course except for tachycardia with pulse rate of 150 beats a minute and electrocardiographic inversion of the T waves in most leads for five or six days. He was alert, mentally oriented, and fully conscious the day after the operation and showed no signs of having suffered cerebral anoxia, although the total time of occlusion of the carotid arteries had been 135 minutes for the right and 45 minutes for the left. He was out of bed on the 50th postoperative day. The second patient, a 17-year-old boy with a large arteriovenous malformation, was also alert and talking on the morning of his first postoperative day. He did well until the morning of the fifth postoperative day, when he went into coma and died. Autopsy showed the right vertebral artery to be thrombosed from the site of its occlusion in the neck up to its junction with the basilar artery. The thrombosis was the result of arterial trauma produced by the occluding bulldog clamp. The clamps chosen for this operation were particularly stiff to insure complete occlusion of the blood supply, and the patient's neck was in such a position during the operation that it was very hard to see the vertebral arteries when applying the clamps; in future, injury to the arteries could probably be avoided by using rubber-shod Poppen clamps. The sum total period of occlusion for all four carotid and vertebral arteries in this patient was 47 minutes and 15 seconds, the longest single period being 14 minutes and 25 seconds. The electrocardiographic and electroencephalographic tracings showed no evidence of anoxia occurring in the heart or brain of either patient during the periods of hypothermia (six and seven hours, respectively) or those of circulatory arrest. Hypothermia is not without risk, but in certain carefully selected cases it may afford the neurosurgeon protection enough to enable him to deal definitively with cerebral vascular lesions.

Chlorpromazine in the Management of Acute Alcoholic States. J. D. Schultz, E. L. Rea, J. F. Fazekas and J. C. Shea. Quart. J. Stud. Alcohol **16:**245-250 (June) 1955 [New Haven, Conn.].

The fact that chlorpromazine produces relaxation, brings about sleep without stupor, reduces agitation, and controls vomiting suggested its usefulness in the management of acute alcoholism. Earlier studies on 64 alcoholic patients were sufficiently encouraging to induce the authors to use the drug in 100 additional patients. The group of 164 patients included 141 men and 23 women. Observations on the earlier series indicated that relatively large amounts of chlorpromazine had to be given. The severity of the physiological disturbance of the patient on admission determined both the dose and the route of administration. The standard dose was 100 mg. of chlorpromazine hydrochloride given intramuscularly on admission, followed by 50 mg. three times daily until symptoms subsided. In severely disturbed patients, 100 mg. of the drug was given intravenously in fluid dilutions, ranging from 10 to 20 cc. of isotonic sodium chloride solution administered in a few minutes to 500 cc. of 5% glucose in water or isotonic sodium chloride solution administered in 30 minutes. In a few of the severely disturbed patients, 150 mg. was given intramuscularly as the initial dose, but 100 mg. given intravenously proved more effective. The subsequent dose in the severely disturbed patient was frequently increased from the standard dose of 50 mg. orally three times daily to 75 or 100 mg. orally for the second or third dose. In a few instances the intramuscular route was used repeatedly. The total dose per patient ranged from 100 to 2,950 mg. over a period of one to six days. Liberal amounts of fluids, usually water and fruit juice, were given by mouth. The authors conclude that chlorpromazine in relatively large doses is extremely helpful in the management of acute alcoholic states. It controls motor excitement, nausea, and vomiting, permits a restful, relaxed sleep, and contributes to the relief of tension and anxiety. The patient retains fluids and nourishment, can be readily aroused for nursing care, and is quickly restored to physiological normalcy. No addiction to chlorpromazine developed, and there were few unpleasant side-effects. Orthostatic hypotension of moderate degree was fairly common at the onset of therapy, and occasionally this hypotension was severe. For this reason the blood pressure of patients given chlorpromazine should be watched closely, particularly when large doses of the drug are administered, and the patients should be kept in a recumbent position.

Chlorpromazine (Thorazine)—Rauwolfia Combination in Neuropsychiatry: Preliminary Report. H. B. Eiber. A. M. A. Arch. Neurol. & Psychiat. **74:**36-39 (July) 1955 [Chicago].

Preliminary testing with the combination of chlorpromazine and Rauwolfia serpentina was begun on 24 patients with such varied neuropsychiatric conditions as schizophrenic reactions, manic-depressive psychosis, senile agitated states, anxiety neuroses, menopausal agitation, epilepsy, primary behavior disorders, and mental deficiency. The subjects were all ambulatory and varied in age from 3 to 92 years. The patients received the combination of 15 mg. of chlorpromazine and 50 mg. of Rauwolfia serpentina (whole root) by mouth. The medicament was given three to four times daily. In some instances the dose was doubled or tripled. In the cases of smaller, younger patients, the dose was halved. No differences were observed when the whole root of Rauwolfia serpentina was replaced by one of its alkaloids, reserpine. The patients were observed first at weekly intervals and later at monthly intervals. There were only three patients who did not improve significantly with this treatment. All the remaining 21 patients showed moderate to marked improvement. It is suggested that this combination may act as a chemical agent on the corticothalamic centers, enabling patients to function at a more satisfactory level. The simultaneous use of the two medicaments appears to be of greater value than when either agent is used singly.

GYNECOLOGY & OBSTETRICS

Chemical Burns of the Vagina. M. J. St. Romain Jr. and F. G. Nix. J. Louisiana M. Soc. **107:**268-272 (July) 1955 [New Orleans].

St. Romain and Nix present observations on 75 women who were treated for chemical burns of the vagina at Charity Hospital, New Orleans, during the period from July, 1949, to July, 1954. A much larger number of chemical burns of the vagina, with less serious complications, were treated on an outpatient basis. The 75 women ranged in age from 17 to 45 years, and parity varied between 0 and 12, with 88% having four or more children. Of these women, 56 admitted using the agents in an attempt to produce abortions. In three instances, tablets were inserted into the vagina in conjunction with intrauterine catheters and vaginal packs by midwives. These three patients, when first seen, showed evidence of pelvic infection. Potassium permanganate was used in 73 of the 75 women; in 52 the tablets were inserted into the vagina as abortifacients; in 21 the tablets or crystals were incompletely dissolved in water in the preparation of douche solutions and the undissolved particles resulted in vaginal burns. One patient used "Orange Blossom suppositories" (containing alum, borax, and petrolatum) to treat a vaginal discharge. Bleeding occurred three days after the insertion of the suppositories, and vaginal examination revealed multiple raw bleeding areas. The remaining woman used tablets of mercuric chloride as an abortifacient. The outstanding symptom of vaginal chemical burns was bleeding. Ulcerative vaginal lesions responsible for the bleeding were present in all patients. The treatment consisted of hemostasis, blood replacement, antibiotics, and antitoxins. Hemostasis was accomplished by sutures in 25 patients. Suturing was impossible in five patients, due to the extensive necrosis, and vaginal packs were used to control the hemorrhage. Transfusion was required in 59 patients; 32 patients received antibiotics. Tetanus and gas gangrene antiserums were administered to 18 patients. The three patients with pelvic infection were treated with nasogastric suction and intravenous fluids in addition to the above forms of treatment. Potassium permanganate is becoming popular among the uneducated and malinformed as an abortifacient, but it is ineffective. Of the 56 women who admitted using the chemical agents as abortifacients, 5 were not pregnant on admission; 6 patients were pregnant but did not return to Charity Hospital for follow-up; and there were 45 cases of proved pregnancies that were followed to termination. These pregnancies resulted in 38 term live births, 2 stillbirths, and 5 abortions. Potassium permanganate used for a cleansing douche may produce serious vaginal burns, if any undissolved crystals come in contact with the vaginal mucosa.

Paracervical Uterine Denervation by Transection of the Cervical Plexus for the Relief of Dysmenorrhea. J. B. Doyle. Am. J. Obst. & Gynec. 70:1-16 (July) 1955 [St. Louis].

Pain synchronous with menstrual bleeding usually referred to as dysmenorrhea occurs in two forms. The pain of primary or essential dysmenorrhea usually occurs during very early menstrual life. It is crampy or colicky in type, localized usually to the low midline hypogastric area, and occurs synchronously with the onset of menstrual flow, although it may precede it for several hours. Its duration is usually several hours to two days. The pain of secondary or acquired dysmenorrhea usually occurs after several years of menstrual life, often not until the second or third decade. It is of a diffuse, dull, aching character and may occur in one or both iliac fossae as well as in the midline. Occasionally, the pain radiates to the lower sacrum or to the medial and posterior thigh or into the vagina. Many young women with primary dysmenorrhea are assured that marriage and childbearing will relieve the condition. Unfortunately, this does not always happen. Of the numerous theories regarding the cause of dysmenorrhea, the most generally accepted is that the discomfort arises chiefly from hypercontractility of the uterine musculature due to an imbalance of its regulators, estrogen and progesterone. Most gynecologists agree that most patients with primary dysmenorrhea will respond to sedation, rest, hygiene, and production of anovulation either by estrogens or testosterone. These remedies are less satisfactory for the acquired type of dysmenorrhea. Temporary relief can usually, but not always, be obtained by prolonged dilatation of the cervical canal. The relative inadequacy of the presacral neurectomy procedure in the relief of both primary and secondary dysmenorrhea is well known, and it has been virtually abandoned for patients with acquired dysmenorrhea at many clinics. Many European gynecologists relieve uterine pain by transection of the intersacral ligaments. The author mentions various denervation procedures and describes his own experience with the transection of the cervical division of the Lee-Frankenhäuser uterovaginal plexus lying in, around, and under the terminal 2.5 cm. of the uterosacral ligaments. It permits sensory denervation of the cervix and fundus of the uterus and the proximal segment of the tubes. The procedure may be done during laparotomy or culdotomy. Since the culdotomy approach is the first step of a vaginal hysterectomy, gynecologists may prefer the vaginal approach particularly if the illumination is improved by the use of the pelviscope set, which consists of a lighted right-angle retractor with twin lights at its tip and a set of two telescopes offering right angle or 45° angle fields of vision with a threefold magnification. The general surgeon may prefer the abdominal approach. It has been the author's practice to reserve the vaginal approach for those patients with dysmenorrhea in whom pelvic examination, both vaginally and rectally, revealed tenderness but no nodulation in the uterosacral ligaments and a cul-de-sac free of induration or masses. The vagina must be free of infection. In the series of 73 cases reviewed in this paper the denervation was done by the vaginal route in 36 cases and by the abdominal route in 37 cases. Neuromuscular and neurovascular autonomic imbalance is avoided with this technique of uterine denervation since both sympathetic and parasympathetic pathways are interrupted. Relief of acquired dysmenorrhea with or without antecedent primary dysmenorrhea was obtained in 69 of 73 cases. The relief was complete in 63 cases. There was no interference with the function of the bladder or rectum. The regrowth of the nerves is prevented by the interposition of the posterior parametrial peritoneum between the transected uterosacral ligaments and the top of the vagina.

PEDIATRICS

Experiences with 180 Cases of Tetralogy of Fallot in Infants and Children. R. D. Rowe, P. Vlad and J. D. Keith. Canad. M. A. J. 73:23-30 (July 1) 1955 [Toronto, Canada].

Advances in diagnostic technique during the last 10 years have opened the way to the correct diagnosis of the tetralogy of Fallot in small infants and children with cyanotic heart disease. Congestive heart failure never occurs during childhood in the natural course of this malformation; consequently, the finding of an enlarged liver with gallop rhythm in a cyanotic child before surgical intervention excludes a diagnosis of tetralogy of Fallot. Some of the more serious cardiac malformations found in infants may have closely similar physical signs, radiological picture, and electrocardiographic alterations, and this often makes differential diagnosis difficult. Early determination of the correct diagnosis, however, is important from a prognostic point of view and full advantage should be taken of such accessory procedures as chest radiography, electrocardiography, ear oximetry, cardiac catheterization, and angiocardiography. Anoxia is the chief cause of death in children with this condition. Those who survive the dangerous first two years show a certain amount of adaptation to anoxia; they are aware of their limitations and often employ maneuvers such as squatting or lying on one side to relieve discomfort or dyspnea. The average age of survival, however, is only 12 years and very few patients survive the second decade. The records of the 180 patients with the tetralogy of Fallot seen at the Hospital for Sick Children, Toronto, show that, of the 40 who died, 67% were less than 2 years old and 83% were less than 5. Medical treatment should be used whenever possible to carry the patient through infancy until he reaches an age at which surgical correction of the defect can be carried out with greater safety. The best age seems to be between 4 and 5. Cyanosis is strikingly lessened in patients who have been operated on successfully, and their exercise tolerance is greatly improved. The purpose of the surgical treatment is to increase the pulmonary blood flow and, while it is not possible now to say how long the improvement will last, the benefit still being enjoyed by patients who were operated on as much as 10 years ago augurs well for their future.

Blood Formation in Infancy: Part IV—The Early Anaemia of Prematurity. D. Gairdner, J. Marks and J. D. Roscoe. Arch. Dis. Childhood 30:203-211 (June) 1955 [London, England].

In premature infants the postnatal fall in hemoglobin level tends to be exaggerated, so that these infants, although starting life with a cord hemoglobin as high as that of normal infants, often develop abnormally low hemoglobin levels during the second month. Usually this early anemia of prematurity slowly improves after about age 4 months but is frequently followed by a second phase of anemia. This late anemia of prematurity does not differ from the hypochromic anemia common in other infants of over 6 months. It reflects the precarious iron balance during infancy, exaggerated by several factors that bear on the premature infant, such as its smaller initial iron stores, its more rapid growth, and its tendency to receive a purely milk diet for a prolonged period. The cause of the early anemia of prematurity has, however, never been understood. Three different mechanisms have been suggested: (1) that the anemia results from abnormally high rate of destruction of red blood cells; (2) that it is the result of the rapidity of body growth outstripping a normal erythropoietic capacity; and (3) that it is the result of a functional immaturity of the bone marrow, a dyshemopoiesis. Each of these three suggested mechanisms was examined by the authors in the light of data obtained in 31 infants having birth weights below 1,620 gm. (3 lb. 9 oz.). The main study concerns a group of 26 infants, to half of whom additional iron was given, while another 5 infants received cobalt as well as iron. The authors found that the early anemia of premature infants is due mainly to the slow response of erythropoiesis to the stimulus of anemia. This slow response is not peculiar to premature infants, but in them its consequence is exaggerated by the rapidity of their growth. Rapid growth also has the effect of prolonging the anemia once it has developed. There is no evidence that an abnormal rate of red blood cell destruction, if it occurs, contributes significantly to the production of anemia. Marrow studies reveal no differences between the myelograms of premature and normal infants. Iron, if given from about the third week, mitigates the anemia but does not always prevent it. Iron is well tolerated and there seems good reason to give it to the smaller premature infants from about the third or fourth week. If cobalt is given in addition to prophylactic iron, a striking increase in erythropoiesis can be provoked, sufficient in most cases to prevent anemia. However, the effects that cobalt may have upon the thyroid make it unjustifiable to administer it routinely to premature infants.

The Schönlein-Henoch Syndrome (Anaphylactoid Purpura) Compared with Certain Features of Nephritis and Rheumatism. I. C. Lewis. Arch. Dis. Childhood 30:212-216 (June) 1955 [London, England].

Similarities between acute rheumatism, acute nephritis, and anaphylactoid purpura, also known as the Schönlein-Henoch syndrome, had been pointed out by Gairdner in 1948 who had also called attention to the fact that an upper respiratory tract infection associated with hemolytic streptococci preceded these conditions so commonly as to suggest bacterial hypersensitivity as an etiological factor. The present report enlarges upon some of the points raised by Gairdner. It is based on 139 cases of anaphylactoid purpura (Schönlein-Henoch syndrome), 297 cases of nephritis, and 307 cases of rheumatism. All of the children with anaphylactoid purpura (Schönlein-Henoch syndrome) had the characteristic exanthem and joint and/or abdominal symptoms. The children with this syndrome, those with acute hemorrhagic glomerulonephritis, and those with acute rheumatism were compared with regard to sex ratio, age of onset, seasonal trends, and the incidence of previous upper respiratory tract infections, particularly those associated with hemolytic streptococci. The authors feel that the evidence they obtained supports a close relationship between anaphylactoid purpura (Schönlein-Henoch syndrome) and acute nephritis, and a bacterial hypersensitivity as a major causal factor in all three conditions. The sharp rise in the numbers of cases of anaphylactoid purpura (Schönlein-Henoch syndrome) in the spring and autumn also suggests a relationship with respiratory tract infections.

THERAPEUTICS

Coronary Dilator Activity and Therapeutic Importance of a Synthetic Drug with a Kellinic Action: the 2-Phenylchromone. V. Ferrari and G. Finardi. Minerva med. 46:1175-1180 (April 25) 1955 (In Italian) [Turin, Italy].

The effects of prolonged administration of 2-phenylchromone (Cromarile), a preparation whose activity, according to some authors, is two times greater than that of kellin, were studied in nine patients with coronary insufficiency. Doses ranging from 45 to 120 mg. daily never caused untoward reactions, and the beneficial effect of the drug was evident from the clinical, electrocardiographic, and functional standpoints. Total or almost total suppression of painful attacks was observed in four patients, while in three the attacks decreased in intensity and frequency. The effect of the drug was preventive and led to reduction or disappearance of the attacks in a few days. The effect was poor in two patients, in one of whom syphilitic coronaritis refractory to all symptomatic treatment was present, whereas the other had suffered a severe infarct. The arterial pressure of the patients was not influenced. The symptomatic action of Cromarile was studied in three persons who were subjected to the effort test. In all three, the test, which at first caused precordial pain, was painless after the administration of the drug. The electrocardiographic findings were improved in all the persons studied. Despite their limited experience, the authors state that the activity of 2-phenylchromone in dilating the coronaries from the functional as well as the symptomatic standpoint is extremely favorable, especially because doses that are effective are completely devoid of side-effects even when they are administered for months without interruption.

Clinical Experiences with a New 4-Oxycoumarin Derivative: Sintrom. S. Moeschlin and H. Schorno. Schweiz. med. Wchnschr. 85:590-592 (June 11) 1955 (In German) [Basel, Switzerland].

The new coumarin preparation, Sintrom (3-nitrophenylacetylethyl-4-oxycoumarin), takes an intermediate position between the coumarin preparations that have a prolonged effect and those that have a short action. The authors have used it since September, 1954, in 50 patients for the treatment of thrombosis, pulmonary embolism, and cardiac infarct, and to prevent thrombosis after operations or trauma. The drug is available in 4 mg. tablets, which can be divided. It is tasteless and is willingly taken in water or tea. The daily dose need not be divided but can be given at once. The prothrombin level increases within 24 hours and subsides to the initial values in from 48 to 72 hours. Therefore it is comparatively easy to adjust to the optimal prothrombin level without a too protracted time of recuperation, which can be further reduced by the administration of vitamin K_1. The new drug has practical advantages over other anticoagulants and is of great value in internal, surgical, and gynecologic conditions. No undesirable secondary effects were observed, even during prolonged treatment of up to six months.

Yeast Dermatoses During Antibiotic Therapy: III. Pathogenic and Therapeutic Study, with Particular Reference to the Incidence of Avitaminosis. P. de Graciansky, R. Leclerq, J. Delaporte and P. Gouin de Roumilly. Semaine hôp. Paris 31:2170-2182 (June 20) 1955 (In French) [Paris, France].

The various hypotheses proposed to explain the action of yeasts in certain untoward effects of antibiotic therapy are discussed, on the basis both of statements in the literature and of experiments conducted by the authors. Direct contact of various antibiotics with Candida albicans produced no noticeable effects on the latter, nor was there conclusive evidence that this organism acquires greater virulence when growing in the presence of an antibiotic agent. The administration of antibiotics to experimental animals does favor the germination of C. albicans, however. It must therefore be concluded that certain modifications of the terrain are induced, permitting the development of the disease caused by the yeast. The decimation of other organisms by the antibiotics with consequent disturbance of the floral distribution in favor of the pathogenic yeasts is a contributory factor but is not sufficient to explain the occurrence of the disease. The role of certain avitaminoses, notably that of avitaminosis B_2, seems to be established. The authors' experiments show that, contrary to past affirmation, vitamin B_2 does not possess fungistatic properties. Animals deficient in vitamin B_2 are definitely hypersensitive to infections caused by C. albicans, even when their deficiency is not enough to cause disturbances of the general condition. Two further factors mentioned in the literature, sensitivity to antibiotics and local irritation caused by antibiotics, do not appear to be important. Therapy of the yeast dermatoses caused by antibiotic treatment should consist not only of local and general applications of antifungal agents but of prophylaxis with the vitamin B complex.

BOOK REVIEWS

Denial of Illness: Symbolic and Physiological Aspects. By Edwin A. Weinstein, M.D., Associate Attending Neurologist, Mount Sinai Hospital, New York, and Robert L. Kahn, Ph.D., Research Psychologist, Mount Sinai Hospital, New York. Publication number 249, American Lecture Series, monograph in Bannerstone Division of American Lectures in Neurology. Edited by Charles D. Aring, M.D. Cloth. $4.75. Pp. 166. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1955.

This monograph represents the culmination of eight years of intensive investigation of the behavioral changes in brain disease, with use of .a combined neurological, psychiatric, and psychological approach. From many carefully controlled clinical studies of what superficially appear to be seemingly irrational behavior, the authors evolve clear evidence that denial of illness can be viewed as an orderly and understandable adaptation pattern to stress. This volume is a valuable monograph and carefully compiled, with adequate line drawings, complete references, and a valuable condensed table of clinical data of the 104 patients studied.

An introductory chapter considers the history of studies of denial of illness dating from the earliest cases described by Von Monakow in 1885, by Anton in 1896, and by Babinski in 1914. The authors then go on to describe the patterns of denial and list the following patterns of explicit verbal denial: (1) complete denial, (2) denial of major disability, (3) minimization or attribution to some benign cause, (4) projection of disability outside of the self, and (5) temporal displacement of the disability. They indicate that the denial of illness usually included more than one aspect of the illness, that the disability that was denied was not necessarily caused by a lesion of the nervous system, that patients with anosognosia for physical disabilities commonly denied the existence of other personal problems, and that confabulation was the device used to amplify the denial. The duration of anosognosia in patients varied from several days to one year; many patients who recovered showed amnesia for the period of denial. The patients with complete explicit denial showed no anxiety and were bland and affable during interviews. Other chapters consider the patterns of disorientation; reduplication manifestations; the language of denial; personality factors; anatomic and physiological factors; psychological studies; and experimental production of denial with special studies of the effects of barbiturates, the use of the Amytal test in the diagnosis of brain disease, and the effects of electric shock. A summarizing chapter also concerns itself with theoretical considerations.

The authors' data help to bury the ghost of overmeticulous cerebral localization, and they develop a comprehensive theory of the denial of illness as a reaction to stress. The book is highly recommended and should be read by every psychiatrist, neurologist, and internist.

How to Live Without Liquor. By Ralph A. Habas, Ph.D. With introduction by W. W. Bauer, M.D., Director, Bureau of Health Education, American Medical Association. Cloth. $2.50. Pp. 125. Farrar, Straus and Cudahy, 101 Fifth Ave., New York 3; Ambassador Books, Ltd., Toronto, Canada, 1955.

Although it has been designed for the general public, many physicians may read this little book with profit. While much of the factual information—for example, the description of the various medical treatments that may be used with the alcoholic—will be familiar, there is much material that is likely to prove enlightening and helpful to those without specialized training or with limited practical experience in coping with the liquor addict. In this category may be included the sections dealing with Alcoholics Anonymous, the therapeutic role of religion, the psychological and physiological factors involved in pathological or compulsive drinking, the special problems of the female drinker, and the agencies and facilities that are available to aid the alcoholic. This book's strongest claim to attention, however, lies in the fact that it can be heartily recommended to the problem or borderline drinker as well as to his or her relative, employer, or friend—indeed, to everyone directly or indirectly concerned with the liquor problem. The drinker himself, who, incidentally, is urged to see his family physician first, will find sympathetic understanding, wise counsel, practical guidance, and real encouragement in the pages of this book. Relatives and others anxious to assist the drinker will gain a better appreciation of his difficulties, receive sensible down-to-earth advice on how to treat him and influence him to take the necessary steps toward overcoming his addiction, and learn just where to go for specific information or personal assistance. For those who simply wish to become better informed on the grim but fascinating and vital problems of alcoholism, a reading of this lucid, nontechnical book will provide a rewarding survey of its most important practical aspects. In meeting this need, this unpretentious book can do much good.

Diseases of the Ear, Nose, and Throat in Children. By T. G. Wilson, M.B., B.Ch., Litt. D., Ear, Nose, and Throat Surgeon, Dr. Steevens' Hospital, Dublin, Ireland. Cloth. $12. Pp. 307, with 145 illustrations by author. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W.C.1, England, 1955.

This textbook should be a welcome addition to the libraries of otolaryngologists and pediatricians. The character of otolaryngological practice has changed greatly during the past generation because of the advent of sulfonamides, antibiotics, and antihistaminic drugs, and this has brought with it fresh emphasis on congenital defects, infantile otitis media, defective hearing and speech, the auditory and vocal rehabilitation of deaf children, and infections of the respiratory tract. Within the domains of otology, the relatively new science of audiology has developed. Readers of this book should find the chapters on congenital abnormalities of the ear, nose, face, esophagus, and lower respiratory tract useful and the chapters on deafness in childhood, the training and education of deaf children, defective speech in childhood, and thyroglossal cysts and fistulas informative. This book is highly recommended.

Pathology. By Peter A. Herbut, M.D., Professor of Pathology, Jefferson Medical College, Philadelphia. Cloth. $16. Pp. 1227, with 1378 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1955.

Professor Herbut states in the introduction to this book that it is intended for "the student of medicine—be he undergraduate or postgraduate" and indicates the general plan of the book. First, there is a brief survey of general pathology and then a full and systematic consideration of special pathology. The chapters in the latter section reflect the author's great interest in surgical pathology. All the important lesions and many unimportant ones are carefully described and illustrated. The book retells the traditional story of pathology from the familiar point of view of morbid anatomy, but pathology can be considered from other points of view, and of these the book makes little mention. Scant consideration is given to the mechanisms by which the lesions have been brought about, and there is only a small effort to explain them in terms of biochemical or biophysical alterations. The relative space devoted to general pathology and special pathology, which is in the ratio of about 1:10, seems disproportionate, and as a consequence the student is given only a bare description of the tissue changes and a list of the causes of such important phenomena as inflammation, degenerations, and tumors. Similarly in the chapters on special pathology little mention is made of the functional changes that accompany the anatomic changes. To illustrate, there is no discussion of abnormal liver or kidney function, although the morphological aspects of diseases of the liver and kidney are discussed in detail. The student who is willing to make allowances for these omissions will find the book a helpful guide to the identification of the evidences of disease that he will observe in the autopsy room and the laboratory of surgical pathology.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

QUERIES AND MINOR NOTES

PAIN RELIEF DURING LABOR

To the Editor:—*A pregnant woman, who was a heroin addict, has been free of the addiction for 18 months. She is fearful of any pain-relieving medication during labor because of the possibility of renewing the drug habit. Is there any reason for concern if pain-relieving drugs are used sparingly during labor? If not, what about the use of barbiturates?*

M.D., New York.

This inquiry was referred to two consultants whose respective replies follow.—Ed.

Answer.—The patient well should fear renewal of her addiction if narcotics are used in labor. She should first be encouraged to believe she may need little or nothing in labor for relief of pain. Such methods employed by Grantly Dick Read, or even hypnosis if that is available may be helpful. To go through a labor without narcotics would strengthen her psychic resistance following her addiction. If these methods fail or are not available, barbiturates or any of the sedative nonnarcotic drugs may be used. Some obstetricians are using inhalant gas with considerable success.

One suggestion that may be helpful is the use of the new drug thorazine or chlorpromazine hydrochloride. When this drug is used, the dose of sedatives may be cut in half; in fact, one must use care in the dosage of any sedatives when this drug is used, because it enhances the effect so much one may oversedate the patient. When the second stage is reached, gas may be used, if necessary.

Answer.—There is no need to be concerned about the possibility of therapeutic use of pain-relieving drugs leading to relapse to opiate addiction, more particularly since the size of the doses used would be quite small. Addicts practically never relapse as a result of receiving analgesics postoperatively. Relapse is usually traceable to the same psychological and environmental factors initially responsible for the addiction. The same considerations apply to the use of barbiturates. If the patient insists on receiving no analgesics, small amounts of scopolamine might be tried. The use of some kind of regional anesthesia such as caudal analgesia might also be considered.

COMPLICATION OF PROLONGED CORTISONE TREATMENT

To the Editor:—*A 42-year-old white woman had been treated for severe arthritis for the past four years with cortisone, 25 to 50 mg. daily, and then she was referred to our clinic for a routine chest x-ray, which showed a massive pleural effusion in the left side of the chest. After aspirating the greater portion of this empyema, which was pea-green in color and very thick, we noted that there was no definite evidence of any parenchymal lesion that may have caused this empyema. There was no history of any previous pneumonia. A Mantoux test was negative, and the pus was negative for tubercle bacilli. Other examinations failed to reveal the cause of this empyema. Could a pleural empyema be caused by prolonged administration of cortisone?* *Louis Levin, M.D., Pontiac, Ill.*

Answer.—The case described presents one of the not uncommon and most distressing complications of prolonged cortisone treatment. The masking of the symptoms of an infectious process by cortisone administration has frequently been observed. In experimental animal and in humans it has been demonstrated that infections with organisms usually considered to be nonpathogenic or of very low virulence may occur when cortisone is administered in high dosage or over a long period of time. Preexisting infectious foci, particularly those of tuberculous etiology may flare up and produce a widespread systemic infection with minimal symptomatology under the influence of cortisone administration. Systemic infection with fungi ordinarily considered nonpathogenic have been reported in patients receiving cortisone. The reasons for this enhancement of susceptibility to infection seen in patients receiving cortisone (or other adrenal steroid) therapy are not entirely clear. Experimentally it can be shown that large doses of adrenal steroids may attenuate the immune processes that combat infection. It is also known that large doses of adrenal steroids may inhibit the repair processes of the body. In the case in question it would seem reasonable to postulate that the patient's resistance to infection was lowered by the chronic administration of cortisone with the consequent production of the empyema. Microscopic examination and culture of the pus for fungi such as Candida (Monilia) or Histoplasma capsulatum may help to establish the cause of this infection.

HEMOIRRADIATION

To the Editor:—*I received a letter about a patient who received irradiated blood by an instrument called a Knott hemoirradiator for myocardial infarction. The physician giving this treatment claims it is an accepted form of therapy in a number of medical conditions and quoted an extensive bibliography. I am not familiar with this instrument and would appreciate any information that you may give me as to its clinical usage, especially in coronary artery disease.*

Alexander A. Doerner, M.D., San Francisco.

Answer.—The Knott hemoirradiator is an apparatus that is employed to expose blood drawn from a patient to ultra violet light. This blood, presumed to have been modified by such exposure, is then returned to the patient as a therapeutic measure. This technique has been employed in a wide variety of diseases in which results are difficult to evaluate because of the inherent variability in the natural history of these disorders, e. g., biliary tract disease and pelvic cellulitis. Under such circumstances a protagonist could make a case for "benefit" from such therapy. It is, however, the general consensus that hemoirradiation by ultra violet light has not been demonstrated to be either on a firm theoretical, experimental, or clinical basis. The use of this technique for coronary artery disease is advocated by none of the authorities in this field throughout the country.

HEADACHES FROM DYNAMITE

To the Editor:—*A 35-year-old married man, in the course of his work, has occasion to handle dynamite. After handling the material, with his hands gloved, he invariably develops a violent headache. Furthermore, he tells me that the same type of headache will occur from merely wearing the gloves used in handling the dynamite, even though several weeks may elapse. I would appreciate an explanation of this phenomenon.* *Carl Stein, M.D., Loudonville, Ohio.*

Answer.—Nitroglycerin is readily absorbed through the human skin, if it comes in contact with the skin as from wearing "powder-contaminated" gloves. If the air contains nitroglycerin and similar nitrobodies, absorption by the lungs may add to the amount entering the body. The resulting dilation of cerebral blood vessels is presumably the mechanism of the nitrite headache. Rubber-impregnated gloves are sufficiently impervious to nitroglycerin to afford protection. These must be laundered in alkaline solutions daily or after each use to prevent their becoming a source of the drug (by contamination inside the glove).

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

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MODERN CONCEPTS IN THE TREATMENT OF BURNS

Lieut. Col. Curtis P. Artz
and
Capt. Harry S. Soroff, (MC), U. S. Army

During the past 10 years significant advances have been made in the treatment of burns. Modern concepts of therapy are based on a more thorough understanding of the physiological derangements that occur after burning.

APPRAISAL OF THE BURNED PATIENT

The magnitude of injury is based upon two principal factors, extent of injury and depth of burn. The extent of burn is usually expressed as the percentage of the total body surface area. For many years, Berkow's table was used as a guide for estimating the percentage of body surface burned. A modification of this table by Tennison and Pulaski into the "rule of nines" has been employed recently (see figure).[1] For children, the extent of burn should be increased for the head and trunk and decreased for the extremities.

Burns are usually divided into three categories based on depth: first degree, second degree, and third degree. A first degree burn is characterized by erythema and involves only the outer layer of the epidermis. Healing usually occurs uneventfully in two to five days. It is sometimes very difficult for the most experienced surgeon to distinguish between second degree and third degree injury. Characteristic features of these two depths of burns are shown in table 1. Since the systemic derangements and prognosis are directly related to the amount of tissue destroyed, it is obvious that the full-thickness burn is more serious than a second degree burn of similar extent. It is difficult to assess the exact relation of severity of second degree to third degree burns. In a recent study of 323 hospitalized burned patients, Schwartz and co-workers [1a] have shown that the best correlation between case fatality rate and survival time can be achieved when the percentage of second degree injury is given one-half the weight, area for area, of the percentage of third degree injury. These investigators have suggested a burn index that is calculated by assessing one point for each per cent of third degree injury and one-half point for each per cent of second degree injury. This means that in a mixed burn with 30% third degree and 20% second degree injury the index is 30 plus one-half of 20, or 40. In this same series treated during the past four years, the case fatality rate was 50% for patients who had an index of 45. This simple index serves as a practical guide for severity of injury.

In appraising severity, other factors in addition to the extent and depth of the injury must be considered. Burns in some parts of the body are followed by such crippling defects that they should be regarded as serious even if they are of small extent. These areas of functional importance are the face, hands, feet, external genitals, and flexion creases. If the burn is complicated by a fracture or soft-tissue injury, it decreases considerably the chance of survival and increases the difficulties of treatment. The age and general physical condition of the patient before the burning accident also contribute to the seriousness of the injury. Greater risks are involved in infants and elderly adults. Patients who have renal, cardiovascular, or pulmonary diseases show poor tolerance for burns, even of minor extent. Burns of the respiratory tract are particularly serious, irrespective of the amount of surface area involved.

DISPOSITION OF THE BURNED PATIENT

For treatment purposes burned patients can be divided conveniently into three groups: (1) those with critical burns who should be referred to a well-equipped general hospital where a surgeon experienced in burn care is available, (2) those with moderate burns who may be treated in a small community hospital, and (3) those with minor burns who may be treated on an outpatient basis. Critical burns include: (1) burns complicated by respiratory tract injury; (2) partial-thickness burns of more than 30% of the body surface; (3) full-thickness burns of the face, hands, feet, genitals, or of more than 10% of the body surface; (4) burns complicated by fractures or major soft-tissue injury; and (5)

From the Surgical Research Unit, Brooke Army Medical Center, Fort Sam Houston, Texas.

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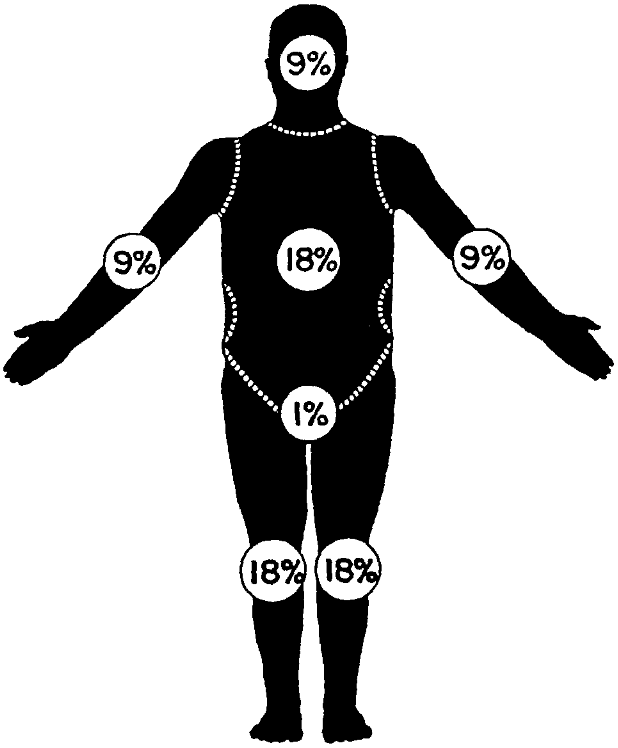
[1] Blocker, T. G., Jr.: Burns, in Current Therapy, 1954, Conn, H. F., editor, Philadelphia, W. B. Saunders Co., 1954, pp. 821-826.

[1a] Schwartz, M.; Soroff, H. S.; Reiss, E., and Artz, C. P.: Analysis of Mortality at the Surgical Research Unit, unpublished data.

electrical burns. Moderate burns include: (1) partial-thickness burns of 15 to 30% of the body surface, and (2) full-thickness burns of less than 10% of the body surface if the hands, face, feet, or genitals are not involved. Minor burns include partial-thickness burns of less than 15% of the body surface and full-thickness burns of less than 2% of the body surface for which the person may be treated as an outpatient and hospitalized later for minor grafting.

Treatment of Burns in Outpatients.—In minor burns, the injured surface should be cleansed with a mild soap and water; all blisters should be broken, and loose, devitalized epithelium should be removed. Masks should be worn by attendants, and an aseptic technique should be carried out. Minor burns of the face may be exposed. Burns of all other areas should be dressed. The burned surface should be covered with fine-mesh gauze, lightly impregnated with petrolatum; then a large, bulky, occlusive dressing should be applied. The affected parts should be bandaged in a position of function and immobilized. Prophylaxis against tetanus should be administered, and, in most instances, antibiotics should be given for three to five days. The dressings should be changed in 5 to 10 days.



Rule of nines: The body is divided into various segments, each representing 9% or multiples thereof. The head and each arm are given 9%; the anterior trunk, posterior trunk, and both lower extremities are given double 9, or 18%; and the genitals are given 1%.

Care of Hospitalized Burned Patients.—Patients with moderate or critical burns should be given emergency treatment and transported to a hospital immediately. If transportation requires less than one-half hour, the patient may be given a small dose of morphine intravenously and the burned areas covered with a clean sheet to prevent further contamination. If transportation requires a longer period, infusion of a plasma volume expander, or lactated Ringer's solution or dextrose in isotonic sodium chloride solution should be started. Patients may be transported several hundred miles by air during the first 24 hours without deleterious effects, providing fluid and electrolyte requirements are fulfilled in transit. Physiological derangements grow progressively worse after injury, so that burned patients do not tolerate prolonged transportation as well after 48 hours as they do during the first 24 hours.

Immediate Hospital Treatment.—General supportive care should take precedence over treatment of the local burn wound. Morphine may be indicated for pain. I it is used, it should be given intravenously in a dose o 8 to 10 mg. Severely burned patients frequently thras about and are most uncooperative because of cerebra anoxia rather than pain. The immediate and rapid infusion of a sufficient amount of a plasma volume expander *frequently transforms an unruly patient into* quiet and cooperative individual. In major burns o more than 25% of the body surface, a cannula shoul be inserted and a Foley catheter should be placed i the bladder. A cannula may provide a satisfactory port for the infusion of fluids. In some severely burned patients, the insertion of a 14-gauge needle into the femor vein will permit a segment of plastic tubing to b threaded through it into the inferior vena cava. Aft removal of the needle the tubing left in the vein provid an excellent means for constant infusion of lar amounts of fluid. The segment of tubing should carefully measured and its length recorded in order be assured that all the tubing has been pulled out of t vein when the cannula is no longer needed. This plast tubing should not be left in place more than 7 to 14 da because it might give rise to thrombosis and pulmona emboli.

TABLE 1.—*Characteristic Features of Second and Third Degree Burns*

Characteristic	2d Degree	3d Degree
Etiology	Hot liquids, short flash	Flame
Color	Pink or mottled red	Pearly white or charred
Surface	Blisters or weeping	Dry
Sensitivity	Painful or hypesthetic	Anesthetic

In the event that respiratory damage is suspected, immediate tracheotomy should be performed. This pr cedure should be carried out as soon as there is suspici of tracheobronchial damage. To delay until there positive evidence of respiratory difficulty may be t late. A tracheotomy should also be performed whe there is a full-thickness burn of the face. Tetanus pr phylaxis should be administered and antibiotic therap instituted. During the first 48 hours, administration one million units of penicillin and 1 gm. of streptomyci intravenously every 12 hours seems to provide excelle prophylaxis against infection. Therapy with penicilli and streptomycin may be continued intramuscularly afte the first two days unless there is evidence that uncontrolled infection is developing. In such instances, on should use a broad-spectrum antibiotic, selected according to the sensitivity of the bacteria cultured from th wound surfaces or the blood stream.

SUPPORTIVE THERAPY

It is customary to think of a burn as a two-dimensional wound-involving area, rather than in terms of depth or volume. Burns are characterized by capillary damage. The third dimension of the burn wound or volume of tissues in which capillaries are functionally deranged is one of the most important factors in understanding replacement therapy. Edema follows burning because of vasodilatation and increased capillary permeability. Contrary to general belief, the visible surface losses constitute but a small fraction of the fluid lost from the effective circulation. Most of this fluid that is lost functionally is sequestrated beneath the burn wound. Third degree burns are even more misleading. They are characterized by a dry surface. The hard eschar may prevent obvious edema; nevertheless large volumes of fluid extravasate into the deep tissues.

Fluid and Electrolyte Therapy.—In general, burns in adults that involve less than 15% of the body surface require only a minimum of supportive therapy. Colloid solutions are not necessary, and fluid requirements are satisfactorily met by an orally given electrolyte solution. A well-refrigerated salt-soda solution containing 3 gm. of sodium chloride and 1.5 gm. of sodium bicarbonate per liter given orally is well tolerated by most patients. This solution is hypotonic and contains 70 mEq. of sodium per liter. Isotonic electrolyte solutions are unpalatable and poorly tolerated when administered orally.

Surface Area Formulas: Intravenous replacement therapy is required in more extensive burns. Several formulas have been devised by different clinics for estimating the amount of fluids required.[2] All the formulas seem to serve as useful guides because they offer an adequate amount of fluids, and the physicians using them should make variations according to the needs of each individual patient. A formula should be used to outline a plan of treatment and not as a strict guide for the exact amount of fluids to be administered. Some formulas consist almost entirely of colloids, and others favor a predominance of electrolytes. During the past four years, a middle-of-the-road formula has been used successfully by the Surgical Research Unit.[3] The colloids and electrolytes required are based on the weight of the patient and the percentage of body surface burned. The requirements for the first 24 hours are computed as follows: colloid, 0.5 cc. per kilogram of body weight for each per cent of body surface burned; electrolytes, 1.5 cc. per kilogram for each per cent of body surface burned; and approximately 2,000 cc. of glucose in water. Since the relationship between fluid requirements and percentage of burn is not linear throughout, the requirements for burns involving more than 50% of the body surface are calculated as though only 50% had been burned.

The requirements for colloids in second degree burns can easily be fulfilled by the use of virus-free plasma or a plasma volume expander, such as dextran. Whole blood is the colloid of choice in third degree burns. The electrolyte requirements are best fulfilled by the use of a balanced salt solution, such as lactated Ringer's, rather than glucose in 0.9% saline solution. Extensively burned patients have a tendency to develop a metabolic acidosis, and the increase in the chloride ion following infusion of 0.9% saline solution only tends to potentiate this acidosis. Since fluid losses are more rapid in the first few hours after injury, approximately one-half of the estimated requirements of fluids for the first 24 hours should be given in the first 8 hours. An increased amount of colloids may be required in patients who are first seen several hours after injury. In such patients, the rate of administration should be rather rapid in order that replacement therapy may catch up with fluid losses. In the second 24-hour period, requirements of colloids and electrolytes are approximately one-half those of the first 24 hours. In addition, the patient needs approximately 2,000 cc. of glucose in water.

After estimates of fluid therapy have been made by use of the formula, the final judgment as to rate and type of solutions administered should be based upon the clinical response of the patient. More rapid administration of fluids is required if the blood pressure is falling and the urinary output falls below 30 cc. per hour. It is not true, however, that the greater the flow of urine the better the therapy. Since fluid leaks from the vascular tree as it is infused, the interstitial space will be excessively expanded if sufficient quantities of fluid are given in order to maintain a urinary flow of more than 50 cc. per hour. If the urinary output exceeds 50 cc. per hour, the rate of infusion should be decreased. Patients who have respiratory involvement or elderly patients should be given minimal quantities of fluid. These patients should receive the smallest amount of fluid possible to insure an adequate renal filtration pressure. The serum sodium determinations may be of value during the second 24 hours. Therapy during this period should be continued with colloids, electrolytes, and water in quantities sufficient to maintain a satisfactory urinary output and a serum sodium level that does not exceed 140 mEq. per liter; a serum sodium level of 135 mEq. per liter is optimum.

Replacement After Forty-Eight Hours: After 48 hours, the patient with moderate burns is usually able to take food and fluids by mouth and will adjust his intake to his needs; however, in critically burned patients the real difficulties in fluid and electrolyte imbalances occur from the 3rd to the 12th day. During this period, the serum sodium level rather than urine output seems to be the best guide to therapy. An adequate amount of free water must be given intravenously to make sure that the serum sodium level does not rise to within the range of 150 to 160 mEq. per liter. Such an elevated serum sodium concentration means hypertonicity of the interstitial fluid. The hypertonicity of this fluid may withdraw water from the cells and lead to intracellular dehydration and death.

Resorption of edema fluid in extensively burned patients may require several days. During the prolonged period of diuresis the insensible water loss appears to be in the magnitude of 1,500 to 2,000 cc. per day. During this period, when the sodium load that was given during the first 48 hours is being excreted, electrolyte-free water should be given in sufficient quantities to maintain a dilution of the serum sodium of about 135 mEq. per liter. If proper amounts of fluid are given in the first 48 to 72 hours, acute renal insufficiency rarely occurs except in overwhelming deep burns of some 70 to 80% of the body surface. After the first 48 hours, the hematocrit serves as a good guide to the adequacy of blood volume. Sufficient blood transfusions should be given to maintain a hematocrit of approximately 45%.

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[2] Evans, E. I., and others: Fluid and Electrolyte Requirements in Severe Burns, Ann. Surg. **135**: 804 (June) 1952. Barclay, T. L., and Wallace, A. B.: Management of Burns: II. Fluid Replacement in Burned Patients, Lancet **266**: 98 (Jan. 9) 1954. Cope, O., and Moore, F. D.: The Redistribution of Body Water and Fluid Therapy of the Burned Patient, Ann. Surg. **126**: 1010 (Dec.) 1947.

[3] Reiss, E., and others: Fluid and Electrolyte Balance in Burns, J. A. M. A. **152**: 1309 (Aug. 1) 1953. Artz, C. P., and Reiss, E.: Calculator for Estimating Early Fluid Requirements in Burns, ibid. **155**: 1156 (July 24) 1954.

When food is not tolerated by mouth, administration of potassium should be started during the second or third day and continued until an oral dietary intake has been established. As long as a patient maintains a good urinary output, there should be little fear of overdosage with potassium. From 80 to 130 mEq. of potassium is a satisfactory intravenous daily requirement.

General Nutrition.—A tremendous loss of nitrogen occurs after a burn. In detailed metabolic balance studies of eight patients (average extent of burn 40%, of which 19% was full-thickness) Reiss and co-workers [4] found that the average duration of the catabolic phase was 33 days. The average daily nitrogen loss for this period was 25.6 gm. Although these patients were encouraged to take a maximum diet, the average daily intake was only 15.2 gm. of nitrogen and 3,000 calories. The average negative nitrogen balance during the catabolic period was 10.4 gm. per day, or a protein deficiency of approximately 65 gm. In spite of this tremendous negative nitrogen balance, the wounds healed well and skin grafts took well.

It is a common observation that burn wounds of individuals who were healthy previously seem to heal well even in the presence of a negative nitrogen balance for the first 30 to 40 days after the burn was incurred. Interference with wound healing does not seem to occur until a prolonged period after injury, at which time extreme depletion may well have occurred. Positive nitrogen balance in the burned patient can readily be achieved as soon as the wounds are healed. Extensively burned patients lose about 1 lb. (0.5 kg.) of weight per day during their period of catabolism. On the other hand, it is not uncommon to see a patient gain 1 lb. per day after the wounds have been closed and the patient is ambulatory.

The aim in the nutrition of burns should be to maintain a maximum intake of proteins, calories, and vitamins. This usually can be achieved by a high-protein, high-caloric diet that is supplemented by a between-meal high-protein liquid intake. In some patients, it may be necessary to insert a nasogastric tube and give a high-protein, high-caloric liquid feeding directly into the stomach. Intragastric tube feedings should be withheld until after the first week. Severely burned patients usually have a gastrointestinal atony for the first few days following injury and they do not tolerate tube feedings. Vomiting and aspiration are not uncommon complications of tube feedings shortly after a burn.

Contraindications for Hormone Therapy.—It is a common misconception that corticotropin (ACTH) and cortisone therapy for the acute burn will do little harm and may be of some general supportive value. There is ample evidence that the administration of corticotropin or cortisone diminishes the patient's resistance to infection.[5] There is no substantial evidence at present that this type of therapy is of any value except in rare instances where it is proved that adrenal insufficiency is present. There is evidence that the patient liberates enough adrenocortical hormone after the severe insult of a burn to make additional hormone therapy unnecessary.[6] Since infection is one of the chief problems in burns, it would seem that any type of medication that might decrease the patient's resistance to infection would be strongly contraindicated.

LOCAL CARE OF THE BURN WOUND

The primary aims of local care are the prevention and control of infection and the closure of the contaminated wound as soon as possible. After correction of the physiological derangements, attention may be directed toward the cleansing of the wound. Every effort should be made to minimize further contamination.

Initial Cleansing.—The patient should be taken to a clean dressing room or operating room where a strictly aseptic technique can be carried out. Usually analgesia induced by intravenously given morphine is sufficient, hence anesthesia with its further risks may be avoided. The cleansing technique produces considerable discomfort but little pain. The burned area should be cleansed thoroughly and all debris and detached epidermis should be removed.

Definitive Local Care: After the burn wound has been made as clean as possible, a decision must be made as to the type of definitive local care. There are two main techniques, exposure and occlusive dressings.[7] These two methods do not constitute two distinct schools of thought, but they are techniques that may be used to complement each other. Neither method is ideal; both have certain advantages and disadvantages. The occlusive dressing method is applicable to all areas, but exposure is not, because certain burns may be of such configuration that adequate exposure cannot be achieved. Under such circumstances, it may be wise to expose some areas and dress others in the same patient. One of the chief advantages of exposure seems to be a more effective control of infection. The warm, moist, dark environment beneath a dressing is conducive to bacterial reproduction. Deep dermal burns, treated by exposure, become dry and usually heal uneventfully, but when treated by dressings they may become infected and result in full-thickness injury. Exposure permits frequent observation of the wound and earlier detection of infection.

During the first 48 hours after exposure, patients have pain and complain of chilling; but they are quite comfortable after the protective covering has formed. Discomfort is minimized if drafts are avoided and if the ward is kept at an even temperature. When dressings are applied immediately after injury, there is freedom from pain and the patient is less likely to be uncomfortable. After a few days, however, the patient who has had his wounds dressed often develops a higher fever and complains of greater discomfort. Dressings permit better immobilization than exposure. The exact depth of the burn can usually be ascertained earlier when the dressing method is used than when the burn is exposed. This undoubtedly permits removal of the eschar a few days earlier. Since exposure is applicable only to burns and not to any other open wounds, the coexistence of soft tissue wounds and burns at the same site contraindicates exposure.

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[4] Reiss, E.; Soroff, H. S.; Pearson, E., and Artz, C. P.: The Metabolic Response to Burns, unpublished data.

[5] Kass, E. H., and Finland, M.: The Role of Adrenal Steroids in Infection and Immunity, New England J. Med. **244**: 464 (March 29) 1951.

[6] Wilson, H.; Lovelace, J. R., and Hardy, J. D.: The Adrenocortical Response to Extensive Burns in Man, Ann. Surg. **141**: 175 (Feb.) 1955.

[7] Artz, C. P.; Reiss, E.; Davis, J. H., Jr., and Amspacher, W. H.: The Exposure Treatment of Burns, Ann. Surg. **137**: 456 (April) 1953.

In the moderate-sized burn there is little difference in the nursing care required by either method. In very extensive burns, particularly when exposed patients must be turned on a Stryker frame, the nursing care of the exposed burn is increased considerably. On the other hand, exposure eliminates the necessity of frequent dressing changes by the physician. Undoubtedly one of the chief advantages of the exposure method that is rarely recognized is that frequent use of anesthetics and frequent dressing changes can be avoided. The detrimental effects of frequent anesthesia in a severely injured patient are well recognized. In major burns of 40 to 60% of the body surface, almost invariably an anesthetic is required for a dressing change. Dressing changes may be necessary at two-day or three-day intervals to keep the wound surface clean, dry, and free from suppuration. In such instances, frequent anesthesia is deleterious to the condition of an extensively burned patient. On the other hand, when exposure is used, no anesthetic is necessary until the eschar is finally removed. A better positioning of the hands and less edema is possible when a dressing is applied; however, after observing several patients who had one hand exposed and the other dressed, it was noted that patients usually prefer exposure because they really dread the pain associated with even the gentlest dressing change.

Almost all partial-thickness burns do extremely well when treated by exposure. This method is certainly preferred for burns of the face, burns of the perineum, and burns of one side of the body. The method of definitive local care should be selected for each particular patient in accordance with the surgeon's experience and the exigencies of the situation. Both methods yield excellent results when applied properly.

Exposure Technique: After initial cleansing of the burn wound, the patient may be placed in bed on clean, nonsterile sheets in the most comfortable position that adequately exposes the affected areas. The exudate of a partial-thickness burn dries in 48 to 72 hours and forms a hard crust that serves as a natural protective cover for the wound. During this time, small doses of a narcotic may be necessary. Epithelial regeneration proceeds beneath this crust and is usually complete in 14 to 21 days. In full-thickness burns there is dehydration of the pearly white or charred dead skin, and it is converted into a protective eschar in 48 to 72 hours after exposure. This eschar serves as a temporary physiological cover until liquefaction occurs beneath it in 14 to 21 days.

If cracks should occur in the eschar, the open area should be covered with a piece of moist, fine-mesh gauze in order that a new covering may form. If suppuration is spreading, the eschar must be removed and dressings should be applied. Treatment by exposure ends in partial-thickness burns when the protective covering falls off and complete healing has been achieved. In full-thickness burns, it ends when eschar removal has been accomplished; granulating surfaces should never be exposed.

Occlusive Dressing Technique: When Allen and Koch[8] introduced occlusive dressings in 1942, it was believed that firm mechanical pressure inhibited the amount of exudate that flowed from the wound and thereby decreased the fluid loss. In recent experiments there has been no evidence that such pressure decreases fluid losses; it only shifts the collection of fluid to the interstitial spaces proximal to the wound.[9] Dressings should be applied with even, resilient compression in such a way that there is elimination of dead spaces and a splinting effect. The initial layer should be gauze lightly impregnated with petrolatum, and the dressing should be bulky to provide maximum absorption.

The time for subsequent dressing change is regulated by the necessity for keeping the wound as clean as possible. In some partial-thickness burns, an adequate dressing can be left in place for 10 days, while in other burns the dressings may need to be changed as frequently as every other day. The dressings should be changed whenever there is undue malodor, increased pain, soaked dressings, or an unexplained elevation of temperature. The dressing change should be performed under sterile conditions, preferably in an operating room. Every effort should be made to eliminate anesthesia. Many dressings may be changed with the aid of analgesia induced with intravenously given morphine.

It is doubtful if an antibiotic ointment is of any appreciable value when applied initially to the burn wound. If local infection develops, however, a specific antibiotic ointment is indicated. The choice of antibiotics should be made according to the sensitivity of the bacteria found on the burned surface. Maximum benefits from antibiotic dressings can be achieved only when they are changed every two days, because antibiotics applied locally seem to be effective for only about 48 hours.[10]

Removal of Eschar and Grafting.—In burns of less than 5% of the body surface that can unquestionably be diagnosed as third degree, primary excision of the full-thickness injury and immediate application of a split-thickness skin graft may be carried out. On the other hand, in the case of large burns when the life of the patient is questionable and the availability of skin is scarce, the eschar should be allowed to remain in place until most of the surrounding partial-thickness burn has healed. This usually occurs about the 14th to the 21st day. In moderate-sized burns and in third degree burns of the hands or around joints, the areas may be excised earlier. In very extensive burns, removal of the eschar should be carried out with the least possible trauma to the patient. It may be necessary to wait until natural sequestration has occurred and a good granulating barrier has formed beneath the eschar. The aim should be to remove the eschar as soon as possible without jeopardizing the patient's chances for survival. After removing the eschar, a dressing should be applied and skin grafting should be performed as soon as the granulating surface is properly prepared. The use of large sheets of skin taken with the electric dermatome is a most expeditious way of covering large burned surfaces.

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[8] Allen, H. S., and Koch, S. L.: The Treatment of Patients with Severe Burns, Surg., Gynec. & Obst. **74**: 914 (May) 1942.

[9] Rhinelander, F. W.; Langohr, J. L., and Cope, O.: Explorations into the Physiologic Basis for the Therapeutic Use of Restrictive Bandages in Thermal Trauma: Experimental Study, Arch. Surg. **59**: 1056 (Nov.) 1949.

[10] Liedberg, N. C. F., and others: Infection in Burns: IV. Evaluation of Local Use of Chloramphenicol Ointment and Furacin Soluble Dressing on Granulating Surfaces Following Extensive Full Thickness Burns, Surg., Gynec. & Obst. **100**: 219 (Feb.) 1955.

TABLE 2.—*Analysis of Fifty-Three Consecutive Burn Deaths, August, 1950, Through March, 1955*

Cause of Death	No. of Cases	Area Burned, % Total	Area Burned, % 3d Degree	Mean Day of Death
Septicemia	30	57	37	20
Fluid imbalance	10	72	58	5
Acute pulmonary damage	4	42	29	0.7
Hepatitis (following plasma)	3	28	25	77
Bleeding duodenal ulcer	2	58	22	22
Bronchopneumonia	1	60	43	10
Congestive atelectasis	1	36	36	61
Cardiac arrest	1	45	40	87
Cerebral contusion	1	80	80	8

TABLE 3.—*Data on Patients with Duodenal Ulcer Due to Burns, 1950-1955*

Case No.	Age	Area Burned, % Total	Area Burned, % 3d Degree	Day of Bleeding	Cause of Death	Septicemia Present	Day of Death	Location of Ulcer	Remarks
1	28	85	60	None	Shock	No	4	Duodenum	Asymptomatic
2	27	72	20	19	Peritonitis	No	30	Duodenum	Gastrectomy; poor healing
3	30	60	55	None	Electrolyte imbalance	No	13	Duodenum	Asymptomatic
4	36	58	58	7	Hemorrhage	Yes	7	Unknown	No autopsy
5	22	45	25	10	Hemorrhage	No	13	Duodenum	....
6	20	45	36	48	Peritonitis	Yes	65	Stomach	Two perforations
7	65	40	25	None	Septicemia	Yes	6	Duodenum	Asymptomatic
8	21	68	43	23	....	Yes	..	Unknown	Massive hemorrhage; 3,500 cc. blood; recovered
9	37	23	17	16	....	No	..	Unknown	Open fracture T-12; 3,000 cc. blood; recovered
10	22	35	15	12	....	Yes	..	Unknown	3,000 cc. blood in 12 hr.; recovered
11	23	30	20	None	Septicemia	Yes	102	Duodenum and stomach	Perforation and abscess at autopsy
12	55	60	40	None	Septicemia	Yes	20	Duodenum	Asymptomatic

Exposure of Donor Sites: An accepted method for the management of donor sites is the use of occlusive dressings. As long as the wound is kept free from infection, healing occurs. Motion, mechanical trauma, and infection are the chief deterrents to proper healing. Bacterial proliferation is not uncommon under a dressing that becomes warm and moist. This is particularly true in hot, humid climates. In extensive burns, it is difficult to apply an occlusive dressing and isolate donor areas that are interspersed between infected granulating surfaces. Donor sites heal uneventfully in most instances if properly exposed.[11] Upon removal of the skin, the donor area should be covered with dry, fine-mesh gauze. A hot, moist gauze pad may be applied until hemostasis is achieved. The area is then exposed to the air, and within 24 hours a coagulum forms from the blood in the interstices of the fine-mesh gauze. This serves as a protective covering for the wound. Healing progresses beneath this coagulum, and the covering falls off in 14 to 20 days, leaving a well-epithelized surface.

Postmortem Homografts: When large areas require grafting, skin for autografts may not be available. In some debilitated patients, the removal of the patient's own skin may be contraindicated. Temporary closure of the wound by a homograft prevents infection and further deterioration of the patient by reducing the amount of fluid, electrolyte, and protein losses. The advantages of postmortem homografts over homografts from living donors are obvious.[12] Postmortem homografts may be removed from the body of a deceased person under aseptic conditions soon after death, preferably within the first six hours. After the skin is removed, it may be stored in a refrigerator at approximately 4 C for as long as seven to nine days. Disintegration of the homograft begins about the 21st day, and the average survival time is about 30 days. As the homografts disappear, they may be replaced with the patient's own skin until areas of full-thickness loss are covered.

OUTSTANDING PROBLEMS IN MANAGEMENT OF BURNS

For many years, toxemia has been the term used to describe a syndrome associated with burns, characterized by disorientation, gastrointestinal atony, high fever, tachycardia, increased respiratory rate, diminishing urinary output, coma, and death. It has been postulated that this toxemia is the result of the absorption of a foreign protein from the dead tissue of the burned surface. In the past few years there has been evidence that this syndrome is directly associated with septicemia.[13] In reality, so-called toxemia of burns is often a septicemia.

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[11] Artz, C. P.; Bronwell, A. W., and Sako, Y.: Exposure Treatment of Donor Sites, Ann. Surg., to be published.

[12] Brown, J. B., and Fryer, M. P.: Postmortem Homografts to Reduce Mortality in Extensive Burns: Early "Biological" Closure and Saving of Patients for Permanent Healing: Use in Mass Casualties and in National Disaster, J. A. M. A. **156**: 1163 (Nov. 20) 1954.

[13] Liedberg, N. C. F.; Reiss, E., and Artz, C. P.: Infection in Burns: III. Septicemia, a Common Cause of Death, Surg., Gynec. & Obst. **99**: 151 (Aug.) 1954.

Septicemia.—In the management of more than 800 burns during the past five years at the Surgical Research Unit, there have been 53 deaths. The causes of death are outlined in table 2. The high incidence of septicemia, as proved by repeated positive blood cultures or by autopsy findings, attests to the predominance of this factor as a problem in burn therapy. As replacement therapy improves, a greater number of extensively burned patients survive the early period after injury but develop septicemia later. The route of entrance of the invading organisms is most likely through the extensively injured surface. At present, the aims in the treatment of septicemia are early skin coverage by autografts or postmortem homografts, optimal fluid and nutritional supportive therapy, and massive doses of antibiotics.

Duodenal Ulcer.—As a larger percentage of extensively burned patients survive because of improvements in supportive therapy, there appears to be an increase in the incidence of gastrointestinal ulcerations.[14] These acute ulcerations in the upper part of the gastrointestinal tract seem to follow the unusually severe stress in extensive burns. During the past five years, 12 patients were observed who had duodenal ulcer due to burns (Curling's ulcer) (table 3). Three of these patients survived massive gastrointestinal hemorrhage, and all evidences of ulcers disappeared upon improvement in general condition and coverage of the burned surface. These patients were treated with adequate blood replacement and antacid therapy. In the nine patients who died, four deaths were directly attributable to perforation or hemorrhage from the ulcer and five deaths occurred from other causes. The intense response of the body to an overwhelming burn may lead to the formation of acute gastrointestinal ulcerations.

SUMMARY

Modern concepts of burn therapy include time-honored surgical principles of supportive therapy, prevention of infection, and early closure of the wound. A better understanding of replacement therapy, particularly in the period after the first 48 hours, has led to an increased survival rate. Two techniques of local care, the exposure method and occlusive dressing method, complement each other in the treatment of the burn wound; the exposure method can also be applied in the management of donor sites. Postmortem homografts are of considerable value in the extensively burned patient, as they furnish a temporary cover for the large granulating surface. During the past five years, there have been 53 deaths among more than 800 hospitalized burned patients. Septicemia has been directly associated with 30 of these deaths. Duodenal ulcer due to burns (Curling's ulcer) has been present in 12 patients, 9 of whom died.

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[14] Weigel, A. E., and others: Gastrointestinal Ulcerations Complicating Burns: Report of 5 Cases and Review of 17 Cases Reported from 1942 to 1952, Surgery 34: 826 (Nov.) 1953.

BASIC PRINCIPLES IN MANAGEMENT OF OPEN FRACTURES

Oscar P. Hampton Jr., M.D., St. Louis

An open wound communicating with a fracture site complicates management of the injury for several reasons. Blood loss may cause shock and seriously delay the definitive management of the wound and fracture. Loss of the hematoma from the fracture site may retard union of the fracture. Damage to the soft tissues may limit the eventual return of function of the part. The principal hazards of open fractures, however, are those of secondary infection and failure of healing of the wound and the fracture.

Infection of the wound may develop in several ways. There may be a true invasive infection of living tissue by bacteria, primarily or secondarily implanted in the wound. Invasive infections of which gas gangrene is an example usually take origin in dead and devitalized tissue in the wound. A second type of wound infection, much more common than true invasive bacterial infection, results from the bacterial decomposition of devitalized soft tissue and blood clot with resulting suppuration. The necrotizing enzymes in the pus thus formed cause further destruction of living soft tissue and bone that in turn leads to more suppuration in a vicious circle. In other instances, a true wound infection is not present in the beginning, but the loss of soft tissue or a gaping, open wound may leave bone, fascia, or tendon exposed. These tissues cannot survive if they remain exposed in a wound. They soon die and become the nidus for wound suppuration. The ultimate effect of an open wound in which these vulnerable tissues remain exposed, then, is really a wound infection beginning in dead tissue. A common denominator in all these wound infections is retained dead and devitalized tissue, truly the pabulum of sepsis.

OBJECTIVES

Basic objectives of the management of open fractures include the prevention or eradication of wound infection and healing of the fracture in good position without further death and loss of tissue. It readily follows that, to achieve these objectives, underlying factors leading to wound infection must be eliminated. The wound must be thoroughly débrided. The depths and recesses of the wound must be thoroughly cleaned of dirt, debris, and foreign material during the so-called contaminated period before active bacterial infection can develop. Contaminated dead and devitalized tissue, which actually includes old blood clots, must be surgically excised before it can be decomposed into pus. Then, those tissues that cannot survive if they

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remain exposed must be covered if surgically feasible with healthy, soft parts before they undergo necrosis.

Insofar as the management of a broken bone is concerned, the fragments must be placed and held in adequate apposition and alignment. Adequate reduction not only favors union of the fracture with minimal deformity but also is an additional measure against wound infection. A septic fracture is usually an unreduced fracture. With the fragments held in good position, dead space in which contaminated blood clot and wound exudate can collect is avoided, pressure of fragments against the underneath surface of the skin that might cause tissue necrosis does not occur, wound margins are more easily approximated without tension, and repeated traumatizing efforts at reduction are unnecessary. In these ways, reduction of the fracture inhibits wound infection.

BASIC PRINCIPLES

In seeking these objectives, the physician must handle open fractures as true surgical emergencies. These open fractures require prompt, thorough investigation, appraisal, and treatment in a fully equipped operating room and not merely a haphazard incomplete examination in an emergency room. With any systemic effects of hemorrhage or wound shock having been previously overcome and with adequate x-ray studies visualizing the entire length of the broken bone having been made, the part is surgically cleaned and prepared (soap and water preparation is all that is necessary, as antiseptics are not advisable) and the wound is thoroughly examined. As a rule, general or spinal anesthesia is necessary. An appraisal of the degree of contamination of the wound and the amount of damaged tissue probably remaining in it serves to determine the surgery that is indicated.

Wound Débridement.—In the technique of wound débridement, exposure of the depths of the wound must be ample. Inadequate exposure leads to inadequate débridement. As a rule, the wound must be extended in the direction that will afford adequate access to the depths of the wound and still facilitate closure by suture but at the same time avoid unnecessary exposure of tissues likely to die if they remain uncovered. In the extremities, incisions are usually parallel to the long axis of the limb. Circular skin incisions around the margins of a wound, the so-called wound circumcisions, are inexcusable. Incisions should not cross the center of a wound that runs in the opposite direction so as to create a crucial incision. When proximal and distal incisions from a transverse or circular wound are indicated, they should begin at opposite corners of the wound so as to leave, in effect, a Z-shaped incision. This kind of an incision is particularly advantageous in areas in which the skin is normally tight, such as over the anterior surface of the leg.

After an ample skin incision has been made, the dead and devitalized tissue must be excised. Healthy muscle is not discolored, bleeds freely, and contracts when pinched; muscle that does not meet these requirements warrants excision. Foreign bodies and dirt are removed. Thorough irrigation of the wound is a valuable cleansing method. Small fragments of cortical bone completely free of soft tissue attachment may be excised; fragments that have any soft tissue attachment at all should be carefully preserved. Sponging in the area of the fracture must be done with great care. Jagged fragments easily catch in the meshes of a sponge and may be avulsed from their soft tissue attachments when the sponge is removed from the wound.

Closure.—After the wound has been made as surgically clean as is technically possible, a decision concerning immediate suture must be made. Closure of the wound of an open fracture by suture at the proper time is highly desirable not only to minimize scar but to protect those tissues that are vulnerable to exposure and to avoid secondary contamination. The decision to suture the wound, however, must be based upon sound surgical judgment. Too much has been said about the immediate closure of wounds of open fractures so as to quickly convert each open into a closed fracture. Of course, an immediate successful suture of the wound is most advantageous but an unsuccessful suture because of abscess formation or necrosis of skin margin due to excessive tension is worse than if the wound hac been left open to granulate to healing. The price o either of these complications is additional soft tissu necrosis that further retards and may prevent woun healing.

In surgery for civilians, suture of a clean, wel débrided wound of an open fracture is frequently feas ble, particularly if the time lag after injury is not to prolonged (many wounds may be closed primarily u to 12 to 16 hours after injury), and closure is definite and surgically feasible without excessive tension bot at the time of closure and later after swelling of wour margins has occurred. On the other hand, if the su geon cannot be certain that the wound is rid of tl pabulum of sepsis or if closure by suture might lead excessive tension on the skin margins, particularly aft swelling has taken place, then an open wound is high preferable despite its inherent hazards. A long, ful thickness, relaxing incision parallel to but several inch from the suture line is at times a valuable way of relie ing excessive tension. If the decision is made to leav the wound open, delayed primary closure should b performed if surgically feasible between the fourth an seventh day, provided the wound is clinically clear Delayed closure of clinically clean wounds is surgicall sound, provided dead space is obliterated or depend ently drained and excessive tension is avoided. Th problem of surgical closure, primary or delayed, of a open wound of a fracture versus the advantages of a open wound for drainage as a safeguard against deej infection (including anaerobic infection) is one tha may severely tax the judgment of even the most ex perienced surgeon.

COMMENT

Do all open fractures require wide open exposure anc débridement as a safeguard against wound infection? Undoubtedly in many open fractures, usually those opened from within-out, the surgeon can be reasonably certain from the circumstances of the accident, the appearance of the wound, and the clothing about the site of injury that no foreign material has been carried into the wound and that soft tissue damage is minimal. Under these circumstances, the factors discussed above that predispose to wound infection are probably not present. In such instances, the surgeon may elect to thoroughly irrigate the wound with sterile saline solution, suture the skin margins or merely apply a sterile dressing, reduce the fracture by closed methods, and apply immobilization. While such practices cannot be condemned, it is to be pointed out that they are a calculated risk. In the majority of open fractures, some débridement of the depths of the wound is definitely indicated. Insofar as the fracture is concerned, the same methods of management are applicable in general to open as to closed fractures. In open fractures, however, the question of employing internal fixation at the time of débridement of the wound often assumes paramount importance. As the wound is explored and cleaned, the fracture site often comes into view. If the contour of the fracture is such as to permit adequate stabilization by internal fixation, the decision regarding it must be made immediately. This, too, is a problem that requires expert decision.

As a practical matter, in well-débrided wounds that can be closed by suture or in which heavy masses of muscle tissue will fall over and protect bone and metal from exposure, there need be little hesitancy in applying internal fixation to the fracture through the open wound if internal fixation is otherwise indicated. Methods of internal fixation that require little or no periosteal stripping, such as intramedullary fixation or multiple screw fixation, appear highly preferable to plating. If, on the other hand, factors likely to lead to infection of the wound are present, internal fixation is probably too hazardous. In doubtful cases, it is advisable to employ some method of management of the fracture other than internal fixation and direct every effort toward obtaining early healing of the wound without infection. Then, if adequate reduction of the fracture has not been maintained, a delayed open reduction and internal fixation through a healed intact skin envelope may be performed. In this connection, however, it must be recognized that an adequately stabilized fracture in good position actually may favor rather than retard wound healing for reasons previously stated. Moreover, with the fracture stabilized in reduction, staged wound care if needed is possible without fear of loss of position.

SUMMARY

The basic principles of the management of open fractures may be epitomized as: (1) proper first aid, such as sterile dressing and effective emergency splinting; (2) immediate correction of physiological deficits to make the patient operable; (3) prompt cleansing and débridement of the wound according to indications in a well-equipped operating room ready for any indicated surgery, not in an emergency room; (4) proper selection of the method of management for the fracture, including, on indications, the use of internal fixation with minimal periosteal stripping; (5) primary suture of the wound only when all factors are favorable, avoiding primary closure when an open wound is preferable as a safeguard against death of skin margins because of excessive tension or for drainage to prevent deep abscess formation, and delayed primary closure by suture (or skin grafts if indicated) of wounds left open if they are clinically clean a few days later; and (6) antibiotics (purposely not mentioned heretofore to place them in proper perspective) administered systemically to prevent invasive infection of living tissue by bacteria presumed to be present in every traumatic open wound. Systemically or locally administered antibiotics or their combination will not prevent the septic decomposition of dead and devitalized tissue in a wound and will not neutralize the necrotizing enzymes in undrained pus. They cannot be used as a substitute for thorough débridement of the wound of an open fracture.

3720 Washington Blvd.

MANAGEMENT OF INJURIES TO THE THORAX

Brian Blades, M.D., Washington, D. C.

Before discussing chest wounds, it is important to emphasize that in cases of major trauma there are usually multiple injuries. No standard textbook patterns are available for study. The surgeon accepting responsibility in the care of the badly injured patient must be versatile and confine neither his interests nor his treatment to one body cavity or region. In all major injuries certain basic factors must be considered and controlled: first, adequate circulating blood volume; and, of equal importance, pulmonary ventilation or open airways, which will result in satisfactory respiration and oxygen exchange.

SUCKING WOUNDS

If the pleura has been penetrated and a sucking wound of the chest produced, it is usually apparent. It is important to remember, however, that if there is any possibility of an opening into the pleural cavity the clothing should be removed, even under the worst conditions, to locate the defect. The importance of prompt closure of sucking wounds of the chest has been repeatedly emphasized. Large sucking wounds of the chest are more dangerous than small defects, but the immediate consequences will depend largely upon the vital capacity of the injured man. In elderly debilitated patients, a small wound may be fatal, whereas, in a young man with an excellent vital capacity, tolerations for amazingly large wounds are sometimes encountered. Closure of a sucking wound will depend upon the conditions and materials available. Occlusive dressings may be employed under emergency conditions. It is important to emphasize that the dressing should be placed over the wound and not packed into the pleura. Once operating room

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facilities are available, the wound should be débrided if necessary and closure accomplished.

Shock in thoracic wounds may be the result of either decreased circulating blood volume or impaired pulmonary ventilation and frequently a combination of both. The accepted treatment for shock after injury may be applied in patients with chest trauma, but it is important to emphasize that, if the trachea and major bronchi contain accumulations of blood or mucus, pulmonary ventilation may be seriously impaired. Removal of these secretions by catheter suction, bronchoscopy, or, in serious cases, through a tracheotomy tube, often results in the dramatic improvement in the patient's condition. In the initial evaluation of a patient with a serious chest wound it would be easy to overload the circulatory system in the treatment of shock, when improvement of pulmonary ventilation is all that is necessary.

ATELECTASIS

Complete or partial loss of the cough reflex caused by pain or shock may result in accumulations of blood and mucus in a bronchi, causing atelectasis. The lesions may vary from a complete atelectasis of an entire lung to the involvement of one or more pulmonary segments. Relief of pain, urging the patient to cough, and early ambulation are valuable preventive measures, and, if atelectasis is present, aspiration of the tracheobronchial tree must be done promptly. Sometimes the passage of a catheter into the trachea and application of suction will relieve the condition. Direct visualization through the bronchoscope may be necessary to remove the obstructing material. Massive hemorrhage into the lung or pulmonary edema may produce an extremely serious situation and is best treated by oxygen therapy after the tracheobronchial tree has been cleared. The physiological effects of shock with acute hemorrhage are characterized by fall in blood pressure, increased pulse, slow circulation, and loss of blood volume. If anoxia persists, increased capillary endothelial permeability, with tissue and pulmonary edema, eventually results in death if not corrected.

INJURIES TO THE CHEST WALL

Except in instances of extensive destruction to the chest wall, the most important immediate effect is pain and the associated splinting of the thorax with serious effects on the mechanics of respiration. In minor injuries to the chest wall, the application of adhesive to minimize respiratory excursions may be helpful. A 3 or 4 in. band of adhesive completely encircling the lower costal margin is the most efficient type of strapping. This results in partial immobilization of the entire bony thoracic cage, but it is dangerous in the seriously injured patient because vital capacity will be further reduced. The general use of regional nerve blocking for control of pain has practically eliminated the need for strapping the thorax after rib fractures. Procaine injected either at the site of the rib fracture or, preferably, by the paravertebral route is usually successful in controlling chest wall pain. Long-acting drugs with oil bases have been employed but may be dangerous and are not recommended. Recently, at the George Washington University Hospital School of Medicine experiments have been conducted with hydrocortisone; however, not enough experience has been gained to evaluate this agent.

Trauma to the anterior chest wall and sternum, common in automobile accidents, may result in multiple rib fractures, fracture of the sternum, and fracture of the posterior ribs or the transverse processes that act as fulcrums. This type of injury may cause serious and even fatal consequences. Moreover, after such a severe wound, there are usually associated visceral injuries. Various types of traction have been applied on the sternum to relieve this condition. Towel clips may be placed into the bone and traction applied to a frame with rubber bands or other mechanical methods.

The work of Carter and Giuseffi [1] on the importance of tracheostomy in severe chest wounds has practically eliminated the need for traction, except in extraordinarily severe instances of stove-in chests. The tracheostomy not only makes it easy to remove accumulated secretions from the trachea and bronchi but, more important, reduces the dead space of the upper airway by about 150 cc. An increase in tidal air for the critically ill or moribund patient, made possible by this technique, may be lifesaving. Finally, decreased resistance given by the tracheostomy tube will reduce the high negativity of the intrapleural pressures in the patient struggling for breath and relieve the flail action of the chest.

HEMORRHAGE, HEMOTHORAX, AND PNEUMOTHORAX

By far the most common source of hemorrhage in chest injuries is from the lungs, producing hemothorax. It is important, however, to remember the possibilities of bleeding from vessels in the chest wall. This may occur in either penetrating or nonpenetrating wounds. Bleeding from intercostal vessels in a nonpenetrating wound is extremely rare unless there are multiple severe rib fractures. Bleeding from the internal mammary arteries is almost always in connection with penetrating wounds. The points of entrance and exit of a missile or knife may give some clue concerning the source of bleeding from the chest wall. If there is reason to believe the internal mammary vessels have been injured, exploration should be undertaken unless the patient's general condition precludes any type of surgical intervention. Complete division of an intercostal vessel is usually followed by retraction of the ends of the vessel into muscle and stopping of bleeding. In instances of incomplete division, however, movements of respiration make clotting difficult and bleeding rarely ceases spontaneously.

Hemorrhage from the lung tissue may result from tears in either pulmonary arterial or venous systems. Since the pressures in the pulmonary system are low (in the order of 20 mm. Hg), fatal hemorrhage is uncommon except in extensive wounds involving major pulmonary vessels. In a great majority of serious thoracic wounds, hemothorax will be present. If there has been considerable loss of blood, in addition to the effects of the hemorrhage there will be respiratory embarassment caused by the partial collapse of the lung or lungs, and in extreme cases shift of the mediastinum. The need for emergency thoracentesis can usually be determined by clinical manifestations. Enough blood should be removed to relieve dyspnea, and after the patient's condition is stabilized the systematic evacuation of the hemothorax must be undertaken. The blood should be evacuated early without air replacement so that the pleural space may be occupied by the reexpanded lung. Failure to observe these principles will often result in formation of a chronic hemothorax requiring open operation and decortication. Moreover, the entire pleural space in the untreated case of hemothorax becomes vulnerable to infection.

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[1] Carter, B. N., and Giuseffi, J.: Tracheotomy, a Useful Procedure in Thoracic Surgery, with Particular Reference to Its Employment in Crushing Injuries of the Thorax, J. Thoracic Surg. 21:495, 1951.

Small lacerations in lung parenchyma will often seal themselves and a tension pneumothorax will not develop. The seriousness and extent of the pneumothorax will depend, therefore, upon the size of the bronchi injured. If a ball valve action results at the site of the injury and air enters the pleura and cannot escape, a tension pneumothorax may be rapidly fatal. In emergency situations, aspiration with a syringe and needle should be carried out, and, if the pneumothorax persists, catheter drainage and the water seal attachment should be accomplished as soon as possible. If proper decompression is done even large defects will heal, usually spontaneously, and it is rarely necessary to perform an open thoracotomy for relief of pneumothorax.

FRACTURES OF TRACHEA OR BRONCHI AND EMPHYSEMA

The possibility of a fracture of a bronchus or even the trachea should be considered in all cases of severe pneumothorax associated with emphysema. The division of these structures may be complete or partial. Survival from this type of injury is more common in the young, since in older subjects associated injuries to the major vessels and viscera usually result in a fatal outcome. The following findings suggest the possibility of a fracture of a major bronchus: a tension pneumothorax with associated subcutaneous emphysema and mediastinal emphysema (there is often little or no evidence of associated fractures of ribs and a minimal hemothorax considering the gravity of the wound); and, finally, atelectasis of the lobe or lung in connection with the tension pneumothorax. After relief of the pneumothorax, with persistence of atelectasis of the lung or lobe, a tentative diagnosis of a fracture of a bronchus is justifiable and open operation should be performed as soon as the patient's condition will permit it.

Subcutaneous emphysema may result from penetration of the lung by fractured ribs or in patients with tension pneumothorax and injury to the chest wall, allowing the air to take the line of least resistance into the tissues of the chest wall and particularly the subcutaneous tissues. Dissection of air may continue into the neck, face, and sometimes over the entire body. Under these circumstances, the patient has an unpleasant appearance, but his life is rarely endangered and after several days or weeks the air will be absorbed. Emphysema becomes dangerous, however, if there is invasion of the mediastinum causing mediastinal tamponade. Voice changes and difficulty in swallowing are certain indications of severe mediastinal emphysema. Subcutaneous emphysema usually requires no treatment. If there has been a tear of a large bronchus or severe mediastinal emphysema is present, repair of the bronchus or trachea should be performed if the site of the injury can be reasonably localized. If this is not the case, and particularly if the patient's condition is precarious, a cervical mediastinotomy to allow some of the air to escape may be lifesaving.

WOUNDS OF THE HEART

Severe nonpenetrating wounds may injure the heart and cause bleeding into the pericardium. Usually, however, heart wounds amenable to surgery are the result of stab wounds caused by ice picks, knives, and other small weapons. Bullet wounds of the heart are almost always fatal, particularly the through and through variety. The possibility of cardiac damage should be considered in every patient with a wound near or over the heart. It is important to determine, if possible, the instrument that caused the wound, the length of the weapon, and the direction of the stab or missile.

The immediate consequence of heart wounds in patients who survive the original wound is the production of cardiac tamponade. Classic manifestations of cardiac tamponade are a weak, feeble pulse, decreased systolic blood pressure, increased venous pressure, and narrowing of the pulse pressure. Heart sounds are absent or diminished. A roentgenogram of the chest is not helpful, but examination with the fluoroscope will establish the extent of cardiac pulsation. Blood pressure, pulse pressure, and the pulse should be reviewed at 15 minute intervals in every patient in whom there is a possibility of cardiac damage.

It is important to emphasize that in patients with heart wounds there may be an initial period of shock and unconsciousness followed by a lucid interval. During this period the victim may give the impression of being intoxicated, and if he has been drinking it is easy to attribute his condition to alcoholism. As the tamponade increases, a second period of unconsciousness will occur, and, if blood is not removed from the pericardium, death will follow shortly. There are differences of opinion concerning the management of traumatic hemopericardium. Until rather recently, most surgeons insisted on immediate operation and suture of the wound. Blalock and Ravitch [2] have advocated initial aspiration of blood from the pericardium to relieve the tamponade and postpone open operation until it is evident that there is continued bleeding. Probably the choice of conservative or radical approach is not so important as the early recognition of the condition. Even if a conservative program of aspirating the pericardium once or twice before resorting to open operation is selected, preparation should always be made for thoracotomy and the aspirations performed in the operating room.

SUMMARY

The basic principles in the management of thoracic wounds consist of maintenance of adequate circulating blood volume and open airways to insure satisfactory pulmonary ventilation and oxygen exchange. The possibility of severe visceral injury in all patients having chest wounds must be considered and existence of such injury established or ruled out. Tracheostomy is an important adjunct in the management of all severe ventilatory and respiratory problems.

901 23rd St. N. W.

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[2] Blalock, A., and Ravitch, M. M.: Consideration of Nonoperative Treatment of Cardiac Tamponade Resulting from Wounds of the Heart, Surgery 14:157, 1943.

PRIMARY CARE OF INJURIES ABOUT THE FACE

Truman G. Blocker Jr., M.D., Galveston, Texas

The primary care of acute injuries of the face usually falls to the lot of the general practitioner or to the hospital house staff on emergency room call except in industrial areas where traumatic surgery has become a specialty. The technique of repair of the majority of lacerations that do not involve actual loss of tissue can be acquired by any conscientious physician without formal specialized training, and beautiful cosmetic results may be obtained by adherence to a few basic reparative surgery principles. On the other hand, mistakes made through carelessness, ignorance, or haste often result in cicatricial and contour deformities that require secondary definitive procedures and can perhaps never be eradicated completely. The unfortunate results of using coarse suture material with big "bites" taking in the skin and deeper structures with each stitch; of wound disruption from hematoma formation; and of lop-sided faces, misplaced eyebrows, and crooked mouths and noses from lack of attention to the symmetry of the features and from failure to observe the anatomic pull of the tissues in motion are not uncommon.

The first consideration in patients with injuries of the head and neck should be the maintenance of an adequate airway. First-aid workers should be taught to keep them in an upright position or carry them prone on a stretcher. Foreign material should be removed from the mouth. A gauze pack applied to the face will control hemorrhage in the majority of instances; a Barton's bandage may be applied if the distance to a hospital is great. The use of a nasopharyngeal airway often obviates the necessity for performing a tracheotomy, but a set should be kept at hand for patients with extensive fractures, with injuries to the floor of the mouth and the neck, and with respiratory tract burns. While appropriate measures are in progress for the treatment of shock, hemostasis of major bleeding points should be obtained. An estimate should be made of concomitant injuries and a second surgical team provided if necessary and obtainable. Work on the face itself must be unhurried and deliberate.

Traumatic lesions are too often approached as surface lacerations with obligatory requirements for surgery. If they are considered first as diagnostic problems and evaluated according to the ultimate functional and cosmetic prospects, elective elements enter into the plan of repair. Conservative débridement and primary closure are important rules for injuries about the face even with war wounds and following other heavy contamination. For this reason, especially thorough mechanical cleansing with detergents and saline solution should be carried out after local or regional anesthesia. Antibiotics should be given immediately upon admission and for several days postoperatively, and tetanus inoculation must never be omitted. No antiseptics should be used in the wound itself. Clots, loose tissue, and débris should be flushed out, but only tissue that is definitely devitalized should be cut away. Small bone fragments in areas of comminuted fractures are left undisturbed if possible. If fascia is greatly involved, it should be incised in the direction of its fibers for the entire extent of the skin wound, and the involved portion should be removed. Decision with regard to muscle débridement may be made on the basis of its consistency, contractibility, and ability to bleed; studies made during the Korean war have shown that these tests are more reliable than color and apparent necrosis.

Examination of the face for concealed fractures may be made conveniently and accurately even in the presence of considerable edema by palpating for displacement on each side in three areas: first, around each orbital rim; second, along the lateral surface of the zygomatic arch and the superior border of the zygoma; and third, along the inferior border of the zygoma and the lateral surface of the maxillary sinus. If the underlying bones in these areas are symmetrical and intact, if there is no obvious deformity of the nose, and if the teeth are in occlusion, the examiner may rest assured that there are no major fractures of the face. Soft tissue wounds must be carefully examined at all depths for injury to major vessels and nerves; perforation into the oral, nasal, orbital, and sinus cavities; and damage to such structures as the parotid duct and nasolacrimal apparatus.

Often at first glance it is difficult to select a point of reference in suturing major lesions of the face. The eyebrow, which should never be shaved, the eyelids, the alas of the nose, and the vermilion border of the lips will serve as guides, and a few temporary tacking sutures may be inserted for preliminary orientation. These structures must be reconstructed carefully in both horizontal and vertical planes for restoration of the symmetry of the individual features and of the face as a whole.

To achieve minimal scarring it is necessary to eliminate dead space by accurate approximation of the tissues in layers and to close the deeper layers shorter than the superficial ones. Tension in the skin must be avoided by undermining in the area adjacent to the injury and by revision of the wound so that suture lines will fall in directions that are anatomically "correct." Linear contractures and notching in lacerations that fall across the normal wrinkles of the face or that cross the margins of the nose, lip, and eyelid may be prevented by staggering the closing incision. In the neck vertical lesions should be closed with a plastic relaxing operation to prevent scar hypertrophy or puckering. This technique, frequently employed in definitive reconstructive procedures, also may be used elsewhere when undermining alone does not achieve sufficient relaxation of the tissues along the central line of tension. Here two triangular flaps are outlined with a common side. The arms of the Z, or reversed Z, as the case may be, are usually placed at an angle of 60 degrees, and the flaps are transposed.

Professor of Plastic and Maxillofacial Surgery, the University of Texas Medical Branch.

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The tips are blunted to avoid compromise of the circulation. Lesions of the cheek result in exposed scars unless they are situated close enough to the hairline, the lower eyelid, the jaw margin, the nose, or the nasolabial creases to be camouflaged in these locations. In the central portion of the cheek, however, zig-zagging of the suture lines will make it less noticeable, since all portions of the scar will not catch the light at once.

CARE OF VARIOUS FACIAL LESIONS

Fine suture material should be employed in lesions of the face, and the stitches should be placed close together. Our individual preference is for wire, which causes practically no tissue reaction. For the deep layers one or more removable continuous 36 wire is used and for the skin 000000 silk, with interrupted stitches placed so that the line of healing will be slightly raised. As a general routine we employ large, bulky dressings to maintain firm, even pressure for a period of three or four days. We begin to remove skin sutures in 48 hours but leave the pull-out wire in place for 7 to 10 days.

Avulsion Wounds.—In avulsion wounds, where skin and soft tissue have been lost, better definitive results will be obtained if raw surfaces can be eliminated by sewing of the skin to the mucous membrane, as in lesions about the mouth, cheek, and nose, by the use of a rotational flap; or by a temporary thick-split graft. Exposed bone should be covered by adjacent soft tissue, but on no account should closure be made over open sinuses unless adequate drainage into the nose can be accomplished or unless a portion of the upper alveolar process has been lost so that drainage occurs into the mouth. If it appears best to leave the wound open for secondary closure, a few deep sutures may be indicated to make the later problem less complex after induration of the tissues has occurred. At any rate, the wound should never be packed open with a mass of gauze so that drainage is obstructed.

Mouth Lesions.—In lesions about the mouth care must be taken to suture lacerations of the mucosa and to follow surgery with frequent irrigations and other measures to improve oral hygiene. If facial trauma has been extensive, patients should be fed by an indwelling plastic tube to give better immobilization of injured parts and to prevent the accumulation of food particles in the mouth.

Facial Burns.—Burns of the face should be treated by mechanical cleansing initially with débridement of loose shreds of tissue only. The exposure method of handling we believe to be the procedure of choice unless lacerations are also present. Dressings are absolutely contraindicated in the treatment of frostbite. Chemical burns of the eye require immediate priority over other types of injuries and must be washed as soon as possible with copious amounts of whatever innocuous fluid is at hand, followed by administration of local antibiotics and mydriatic drugs for pain. Phosphorus burns in the Korean war were treated by removal of particles of the chemical, neutralization with copper sulfate, and washing with saline solution. Patients with ocular injuries should be seen as soon as possible by an ophthalmologist, with the eyes bandaged meanwhile. If the injury is such that the cornea is exposed, the lid conjunctiva must be reconstructed to prevent permanent damage.

Suturing of Face Lacerations.—Every attempt should be made at primary suture of face lacerations within 4 hours after injury, or at least 12 hours. In considering the possibilities of mass casualties, in the event of nuclear warfare, it is obvious, nevertheless, that delayed closure would have to be carried out in the majority of instances. First priority in head and neck injuries would be given to coverage of exposed brain, eye injuries, respiratory obstruction, shock, and uncontrollable hemorrhage. Attempts should be made as soon as possible in facial trauma, after institution of shock measures, to cleanse wounds mechanically and to apply a few strategically placed sutures, matching tissues and effecting partial closure at least. Maxillofacial patients must not be allowed to lie on their backs meanwhile but should be sitting or lying with the face down or to the side.

Nose Fractures.—Fractures of the nose may usually be treated by molding and immobilization with an intranasal pack associated with an extranasal splint. If, however, the bridge has been driven back between the maxillas, forward traction must be applied, for which a pin through the nasal bones may be required. Simple malar depressions and depressions of the floor of the orbit may be approached through the mouth and kept in place by packing of the maxillary antrum for several days with iodoform or BIPP (bismuth iodoform paraffin paste) gauze. Depressions of the zygoma are reached through a small incision just inside the hairline, with a malar elevator passed between the temporal muscle and fascia. Fractures of the outer orbital rim may require direct wiring.

Jaw Fractures.—Fractures of the jaw should be treated initially by immobilization with simple devices employing elastic traction. If sufficient teeth are present, we prefer the Stout intramaxillary multiple-loop wiring with intermaxillary elastic bands for reduction and fixation. Other workers employ labial arch bars of metal or acrylic wired to the teeth in combination with intermaxillary elastic traction. During transportation and until early nausea and vomiting have subsided, only a few bands should be used, and rigid intermaxillary fixation should never be used during this period. For fractures in edentulous jaws intraoral splints of one type or another are applied. These, and the more complicated fractures of the mandible and maxilla involving extensive displacement or loss of bone, require as a rule the technical assistance of the maxillofacial or oral surgeon for definitive treatment.

SUMMARY

The proper primary care of facial injuries should follow certain general principles: (1) maintenance of adequate airway; (2) careful hemostasis; (3) diagnosis of injury to soft tissue and supportive structures; (4) prevention of infection by thorough mechanical cleansing and conservative débridement, systemic antibiotic and tetanus therapy, closure of "dead spaces," and prevention of hematoma formation; (5) accurate replacement of tissues by approximation in layers and by attention to the vertical and horizontal symmetry of the features and of the face as a whole; (6) minimal scarring by use of delicate suture material, undermining of the skin for re-

laxation in closure, revision of incisions as required to avoid contractures and notching and hypertrophy, and application of bulky pressure dressings to prevent excessive edema and provide immobilization; (7) elimination of raw surfaces in avulsion wounds in preparation for definitive surgery and partial closure whenever possible; and (8) simple primary reduction of uncomplicated fractures of the facial bones. The social, economic, and psychological implications of facial trauma are self-evident. Results obtained by careful attention to detail at the time of primary treatment are well worth the extra time and effort that these lesions require.

A PLAN TO MAKE AVAILABLE MORE BLOOD IN CASE OF WAR OR DISASTER

Lieut. Col. Joseph H. Akeroyd (MSC), U. S. Army (Res.)
and
Lieut. Col. William H. Crosby (MC), U. S. Army

Blood transfusion for the treatment of severe injury grew up and came of age in wartime, and methods of providing and using large quantities of stored blood for the care of mass casualties were painfully developed by the armed forces of the United States and other countries. In World War II the British Army established a transfusion service in support of their forces in North Africa, and the U. S. Army organized a similar service in Italy. Both of these systems were self-sufficient with regard to donors. It was not until 1944, after the invasion of northern Europe, that blood collected in the United States was flown into the combat zone. Meanwhile an important change had taken place: the surgeons in the combat zone had learned to use blood and to rely on it in the treatment of severely wounded battle casualties. In North Africa one unit of whole blood had been utilized for every 10 men wounded in action. By 1945 one unit was used for every two men wounded in action. The Korean War showed a further increase: one unit of whole blood was used for every man wounded in action. These, of course, are average figures: 80% of the wounded received no blood at all, and some men received as many as 50 units. In Korea blood was provided somewhat in excess of need, so that it was always available, and it was often administered where plasma or a substitute might have sufficed. Blood for the combat zone in Korea was obtained in the United States and to some extent from American troops in Japan. It was provided in unstinting amount. For the transfusion service, this was a lush time. We may never again "have it so good." Not only was the quantity adequate but the quality was first-rate. The blood was reasonably fresh, and its safety was guaranteed. This latter and eminently desirable characteristic was attained by making use of universal donor blood.

UNIVERSAL DONOR SYSTEM IN KOREAN WAR

The universal donor system has a great deal to commend it. The donors are all of group O; hence there are no A or B antigens on their red blood cells and they may be transfused without being hemolyzed by the recipient's anti-A (or anti-B) antibodies. The donor's plasma may be dangerous: the anti-A (or anti-B) antibodies, if present in high titer, may injure the red blood cells of group A (or AB and B) recipients, but this danger may be circumvented by eliminating from the universal donor transfusion service blood of all donors who have high titers of antibodies. This was done during the Korean war. It resulted in the elimination of 10 to 35% of our universal donors. In all probability, not all of those eliminated were dangerous universal donors, but, since there were ample donors, we could afford to screen out any who were even suspicious.

The determination of the blood group and the tests for safe universal donor blood were performed in laboratories in the United States and Tokyo, well away from the combat zone where the blood was to be used. All of the blood shipped into the combat zone was safe universal donor blood and, so far as A and B blood group antigens were concerned, was compatible with any recipient. Thus, the people in the field who used the blood were relieved of the responsibility of assuring that transfusions were compatible. Transfusions in the combat zone were begun without typing and cross matching, and there were no recorded incompatible transfusion reactions due to universal donor blood. This was an enormous advantage. Transfusions could be started instantly when a wounded man arrived, whether at a battalion aid station or a mobile surgical hospital. Skilled personnel and equipment for cross matching were not needed, and the probability of error under stress was eliminated. In practice, the universal donor system proved to be an extremely valuable expedient. However, it possesses one serious limitation. It is wasteful of the blood donor panel. It discards all of the blood of group A, B, and AB and that of group O considered dangerous universal donor blood by reason of the high titer of anti-A or anti-B antibodies. This blood of course is not discarded. It is diverted to the plasma program or used in hospitals where typing and cross matching can be done. But it is eliminated from the universal donor system, and this means that the system as it is presently defined can utilize only 30% of the donor panel (see table). This is not a serious limitation when a relatively small combat zone, as in Korea, can be supported by the population and transportation facilities of the United States. But were we to become involved in a larger war,

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From the Department of Hematology, Army Medical Service Graduate School, Walter Reed Army Medical Center, Washington 12, D. C.

Read before the Joint Meeting of the Section on Military Medicine and the Section on Surgery, General and Abdominal, at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 9, 1955.

The discussion was opened by Commander Mary Sproul and Dr. John G. Gibson.

or a war in several theaters, or a war involving the United States mainland, we could not afford to rely upon a transfusion service as prodigal as the present universal donor system.

DANGERS OF UNIVERSAL DONOR SYSTEM

Our department of hematology has had this problem under investigation for the past two and one-half years. Our first efforts were directed at the dangerous universal donor. It seemed preposterous that 35% of universal donors were dangerous as indicated by the screen employed to identify them. This screen consisted of diluting the donor's serum 1:200 or 1:250 with saline and adding a mixture of group A and B red blood cells. If agglutination occurred, the blood was considered to be dangerous. Experience has demonstrated that this test eliminates dangerous universal donors, but it undoubtedly errs on the side of caution and thereby eliminates a number of safe donors as well. The saline agglutinins, upon which this test is based, are not the dangerous antibodies and therefore there remained a possibility that a dangerous universal donor might slip through the screen. A survey of 85 donors selected at random from a military population confirmed this (see figure). There were donors with low titers of saline agglutinins and high titers of hemolysins and incomplete (albumin) antibodies, which are believed to be the pathogenic ones. But in spite of these apparent loopholes the system in practice proved safe.[1]

Utilization of the Donor Panel

Blood Group	Proportion of American Population *	Proportion Used in Universal Donor System	Proportion Used in Modified System
O	45	30 †	45
A	41	..	41
B	10	..	..
AB	4	..	..
Total	100	30	86

* Snyder, L. H.: Blood Grouping in Relation to Clinical and Legal Medicine, Baltimore, Williams & Wilkins Company, 1929.

† 65% of group O are safe universal donors.

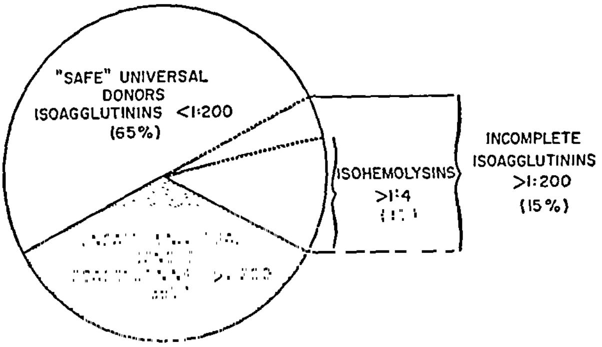
Transfusion experiments, using dangerous plasmas, have suggested that there may exist a further dimension of this problem. The dangerous plasmas may provoke severe transfusion reactions only in certain susceptible recipients. These dangerous recipients may be few in number; if it is so, this unappreciated circumstance may have been an important factor in mitigating the dangers of the universal donor system.

Efforts to find a more selective screening test for universal donors have not been rewarding. Because of the difficulty in identifying dangerous donors by means of plasma transfusions, we have not been able to define them. Efforts to devise other screening tests that would identify high titers of hemolysins or incomplete antibodies have bogged down in techniques that would be unwieldy when applied to the testing of hundreds of units of blood. At the present time, we are unable to suggest any practical means whereby the number of safe universal donors might be increased, unless it be to use Witebsky's soluble blood group specific A and B substance in all blood collected for use in the combat zone. This proposal is under study at the present time.

MODIFICATION OF SYSTEM

Even if we were able to use all universal donors, such a transfusion service would take only 45% of the donor panel and would discard 55%. To find a way out of this unprofitable situation, we have proposed a modification of the universal donor system itself. This suggestion is based upon a plan put to use by Zeitlin in one of the emergency obstetric transfusion services in London.[2] By employing a single blood-typing procedure, this plan permits the use of all group O blood and all group A blood, or more than 85% of the donor panel (see table). The blood of every recipient is mixed with potent anti-A serum. Agglutination of the red blood cells indicates the presence of the A antigen and means that the recipient is of group A or AB. He would receive group A blood. Failure to agglutinate indicates the absence of A antigen. Such a recipient is of group B or group O and would receive group O blood. No further typing or cross matching would be carried out before transfusion was begun. The following statement indicates that a plan similar to that proposed here has been under consideration by the Federal Civil Defense Administration; it differs in that cross matching is stipulated by the Federal Civil Defense Administration.

> Group-Specific Transfusions. Only blood of group O can be given without crossmatch, and this is strictly an emergency procedure. Transfusions of unmatched group O blood should be abandoned as soon as conditions permit to conserve blood for group O recipients. Donor blood of the other groups must always be crossmatched with blood from the recipient before administration.
>
> Donor blood of the recipient's blood group should be selected and the two should be carefully crossmatched with a technique which will reveal both blood group and Rh incompatibilities.



Distribution of isoantibodies in 81 universal donors.

> Although Rh negative blood can be given safely to Rh positive persons, the supply will be limited and should be reserved for Rh negative patients.
>
> During the transitional phase, and when limited blood grouping and matching facilities are becoming available, it may be desirable as a first step to expand collection of blood to include group A in addition to group O donors. Group O blood can then be crossmatched for group O and group B recipients, and group A blood for group A and AB recipients. It is important that the major side of the crossmatch (donor cells and recipient serum) be double-checked for compatibility when cells of different groups are matched.[3]

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1. Crosby, W. H., and Akeroyd, J. H.: Some Immunohematologic Results of Large Transfusions of Group O Blood in Recipients of Other Blood Groups: A Study of Battle Casualties in Korea, Blood 9: 103, 1954.
2. Zeitlin, R. A.: Safer Emergency Blood-Transfusion, Lancet 1: 23, 1954.
3. U. S. Civil Defense: Blood and Blood Derivatives Program, revised edition, Federal Civil Defense Administration, 1953, p. 159.

IMPORTANT PRECAUTIONS FOR NEW SYSTEM

The plan considered here is not without certain soft spots, and we must be certain that these areas of concern are not unreasonably dangerous. Recipients in group B would still be threatened by dangerous levels of anti-B in the plasma of group O blood, just as recipients in group AB would be threatened by the anti-B in the plasma of A blood. It seems fairly clear that the anti-B problem is not nearly so dangerous as anti-A, and it may be diminished to insignificance by the use of blood group specific substances. The anti-A typing serum must be avid, accurate, and exceptionally rapid. It must be able to distinguish weakly reacting A's quickly and unmistakably. Agglutination must develop within a matter of seconds so that harried technicians will not be tempted to set the test aside for later reading. Dr. L. K. Diamond and Dr. Ernest Witebsky have assured us that such serums have been developed and adequate amounts can be produced. Field trials of these serums are under way at the present time.

Perhaps the most critical factor is the ability of the personnel who must administer the blood. During the Korean war, the universal donor system required little or no knowledge of blood transfusion where one sort of blood was used for all recipients. Most of the transfusion reactions that were recorded in Korea occurred when attempts were made to use cross matched blood that was locally procured.[4] The proposed modification requires no high level of skill, but it certainly requires a high level of conscientiousness and a lively knowledge of the dangers and disastrous consequences of error. The personnel of the transfusion service must know how to perform the anti-A test. They must know how to interpret it. They must be certain that it is always a person with A antigen in his red blood cells who receives A blood. This will require a higher level of training and awareness in the personnel of the transfusion service at the level of the mobile surgical hospital.

With regard to the training of these personnel, we are convinced that we should set our sights even higher than the requirement of this modified universal donor system. If ground warfare in future wars is more open, more insular, there well may be times when the mobile surgical hospital or its equivalent must procure its own blood. The level of training of the transfusion team should permit this with a reasonable assurance of its safety. Training schedules to meet these requirements have been constructed and the training cycle has actually been completed on "guinea pigs" at the Army Medical Service Graduate School. It is hoped that within the year we may be able to submit the system to a complete field trial during one of the large-scale maneuvers.

The surgeon general of the Army has sought the advice of the National Research Council concerning this modification of the transfusion service in the combat zone. The matter was referred to the Subcommittee on Blood and Related Problems, which gave the proposal a qualified approval and encouraged further study in the field. During the discussion, Dr. L. K. Diamond stated that the planners for civilian defense in the Boston area had been scrutinizing this scheme for some years. He said that, should war come to the United States mainland, the civilian medical support of disaster areas must use an emergency transfusion service of the univers donor variety, not limited to the 30% of safe univers donor blood. "There may be disadvantages to the d vice of anti-A testing, but there is no other way."

SUMMARY

Review of the universal donor blood transfusion sy tem as it was employed in World War II and the Kore war reveals that the chief disadvantage is that it utiliz only 25% of the available donor panel, a limiting fact that would seriously impede the transfusion service any large-scale war or civilian disaster. A modificati that would permit the use of all group O and all group blood, or 85% of the donor panel, also has certa limitations that seem not impossible to overcon Through the cooperation of military and civilian inves gators, the obstacles to this modified universal don transfusion system may soon be reduced.

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4. Crosby, W. H.: The Safety of Blood Transfusion in the Treatn of Mass Casualties, Military Med., to be published.

Explosive Risks in Surgery.—Explosive risks associated w surgery can be divided into four groups: the presence of infla mable anesthetic gases or vapours; eructation by patients suff ing from pyloric stenosis; collections of gas in the lower bov and the generation of inflammable gases during electro-coagu tion or diathermy of the body tissues. Taking this last risk fi it has been proved that the gases given off when high-freque currents are applied through a fine electrode to body tissues c tain acetylene, ethylene, carbon monoxide, and hydrogen varying quantities. Fortunately these are usually ignited as t are formed and their combustion contributes largely towa the spluttering associated with diathermy. If, however, t collect in a confined space such as the mouth, rectum or blad they may accumulate sufficiently to form an explosive mixtu This undoubtedly is the cause of those occasional pops he during fulguration of bladder growths, for the gases can escape and rise to mix with the air bubble and, upon occasi the electrode may set up a spark near them and cause a mild a muffled explosion. Similar types of explosions have occurred the mouth while using diathermy upon the tongue in cases wh no inflammable anesthetic was in use. It is not beyond realms of possibility therefore that diathermy gases could cumulate within the lumen of a sigmoidoscope and, mixing w the air within that instrument, be ignited by a spark caused wh next the diathermy was used . . . Normally there is little oxyg within the bowels to support combustion, but when perista is brisk, as it is with some anaesthetics (particularly spinal ana thesia) swallowed air or oxygen from an anaesthetic mixture oxygen excreted into the lumen of the bowel from the blo stream, may reach the rectum in less than thirty minutes. Wh operating through a speculum or sigmoidoscope, of course, is admitted to the lumen of the instrument and will be prese to support combustion if suitable ignition is supplied. Seve cases of explosions during minor procedures within the lar bowel have been reported . . . . As an anaesthetist I should li to draw attention to the fact that none of the reported cas was receiving an inhalation anaesthetic . . . . Several suggestio have been made regarding the avoidance of such accidents . . . The diet should be regulated for some days with a view to avoi ing meteorism . . . . Smoke for electrodissection should cleared in some way in case it accumulates and forms an e plosive mixture with air introduced through the operati endoscope. The best suggestion which has been put forward that a steady flow of some inert gas should be introduced to th far end of the endoscope through a fine catheter, so that an gases introduced from the bowel are steadily swept out of th instrument. In addition this will also displace any air whic might otherwise support combustion.—A. H. Galley, M.D., E plosive Risks in Large Bowel Surgery, *Proceedings of the Roy Society of Medicine*, July, 1955.

PSYCHOLOGICAL REACTIONS IN MASS CASUALTIES

Elmer L. Caveny, M.D., Birmingham, Ala.

Americans rarely panic as a result of a major disaster. It is realized that this statement has been made on a number of occasions by individuals of varying prominence in the field of disaster research and is again made here, as always, without substantial support. In like manner, it has been repeatedly implied that Americans are more likely to turn to tremendous reserves of courage, generosity, and heroism in times of disaster than to panic. Such statements are indeed comforting and encouraging and possibly true but, unfortunately, are based on studies involving isolated incidents such as tornadoes, air crashes, large fires, and alarming radio broadcasts, which fail to reveal the entire situation. The condition for studying the reactions of the American people during a disaster, as that arising from an atomic attack, has never presented itself—we trust that such will never be. Tentatively, the conclusion is that the American performs much better when confronted with a specific situation than in anticipation of an abstract future event; that regardless of how emotionally shocking the situation may be, if he has something to do rather than to contemplate, his actions are much more likely to be controlled and purposeful.

Not too much reliance can be placed on the numerous attempts through psychological theory to predict with any degree of accuracy what will happen in the event of an atomic disaster and how we, as Americans, will respond. Dynamic psychology is a very young and incomplete science and is easily strained beyond its limited control of information as to what is taking place in an atmosphere of situationally rather than neurotically aroused anxiety. Our shores and homeland have never been invaded by the devastating weapons of modern war. We know something of the psychological reaction of the American male in stressful situations, even those caused by the horrible destruction of atomic and thermonuclear weapons with the resulting mass casualties—but only as he reacts to them on foreign shores, not in his own backyard. What the actual effect would be upon the civilian population in the event of a sudden atomic attack is open to considerable speculation. In all probability there would be widespread panic, the degree depending entirely on the state of preparedness of the civilian population.

APPROACHES TO PREPAREDNESS

Preparedness embraces two principal themes of approach; the first is that of mental health as it affects the individual as well as the group and is by necessity a long-range educational undertaking. It is generally accepted that stress accruing from threatening situations is based largely on the way the affected person perceives it and depends on many factors, including the individual's genetic equipment, basic needs and longings, earlier conditioning influences, and a multitude of life experiences and cultural pressures.[1] The second theme of approach is that of civil defense, which involves a host of undertakings. These two themes in disaster preparedness are uniquely capable of greatly aiding and benefiting each other in accomplishing their respective tremendous tasks in the years ahead.

Much has been written on civil defense during recent years, and the degree of attention paid to these writings varies with the perceived imminence of attack. The word apathy is appearing with more frequency in reports on current civil defense programs.[2] Since civil defense is geared to hazards of war, it is difficult to maintain the interest of the citizenry in projected situations of a "tomorrow" that never comes. The existence of this state of affairs is of much concern to those in positions of responsibility for safeguarding the civilian population. It has been suggested that by giving serious consideration to certain concepts relating to mental health in its current enthusiastic nationwide program, the civil defense program may, in turn, be brought more in line with daily living experiences.[3] Preparedness for the emotional aspects of disaster is of the same long-range pattern as is the preparedness for the inevitable crisis of everyday living. The community that has a well-organized mental health program in its schools, churches, and other activities is struggling to combat obstinancy and lessen tensions. There is a sinister relationship between the mental health problems involving present-day living and the psycological tensions being created throughout the world by dictatorships. Hoffman [4] states: ". . . To most of us war's aim and end is victory on the field. But to the Kremlin military action is but the most visible and spectacular zone of combat in an unremitting war against the free world. Herein lies our strange and new and often hidden danger—a danger that we cannot fend off by arms alone. We must know that for the Kremlin the military is only one of four fronts—each a battleground of implacable attack. These four fronts are the military, economic, political, and psychological."

In civil defense preparedness there are certain long-range psychological goals that must be emphasized in addition to the acute emergency phases. Communities with well-operating mental health programs are better prepared to accept sudden change and emotional shock than the ones that do not have them; thus, an interest in and forwarding of the existing mental health activity of a community is an imperative prerequisite of a civil defense program that takes into consideration the emo-

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Professor and Chairman, Department of Psychiatry and Neurology, the Medical College of Alabama.

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The discussion of this paper was opened by Dr. Calvin Drayer, Philadelphia, and Col. Albert J. Glass, Washington, D. C.

1. Wolff, H. G.: Changes in the Vulnerability of Tissue: An Aspect of Man's Response to Threat, National Institute of Health Annual Lectures, United States Department of Health, Education, and Welfare, 1953.

2. Janis, I. L.: Psychological Aspects of Vulnerability to Atomic Bomb Attacks, U. S. Air Force Project RAND, D-369, Washington, D.C., Rand Corp., Jan. 15, 1951.

3. Mental Health Implications in Civilian Emergencies: Report of Subcommittee on Civil Defense Community Services Committee, National Advisory Mental Health Council, May 1953, Public Health Service Publication 310, United States Department of Health, Education, and Welfare, National Institute of Mental Health, 1953.

4. Hoffman, P. G.: Peace Can Be Won, Garden City, N. Y., Doubleday & Company, Inc., 1951, p. 93.

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APPROACHES TO PREPAREDNESS

Preparedness embraces two principal themes of approach; the first is that of mental health as it affects the individual as well as the group and is by necessity a long-range educational undertaking. It is generally accepted that stress accruing from threatening situations is based largely on the way the affected person perceives it and depends on many factors, including the individual's genetic equipment, basic needs and longings, earlier conditioning influences, and a multitude of life experiences and cultural pressures.[1] The second theme of approach is that of civil defense, which involves a host of undertakings. These two themes in disaster preparedness are uniquely capable of greatly aiding and benefiting each other in accomplishing their respective tremendous tasks in the years ahead.

Much has been written on civil defense during recent years, and the degree of attention paid to these writings varies with the perceived imminence of attack. The word apathy is appearing with more frequency in reports on current civil defense programs.[2] Since civil defense is geared to hazards of war, it is difficult to maintain the interest of the citizenry in projected situations of a "tomorrow" that never comes. The existence of this state of affairs is of much concern to those in positions of responsibility for safeguarding the civilian population. It has been suggested that by giving serious consideration to certain concepts relating to mental health in its current enthusiastic nationwide program, the civil defense program may, in turn, be brought more in line with daily living experiences.[3] Preparedness for the emotional aspects of disaster is of the same long-range pattern as is the preparedness for the inevitable crisis of everyday living. The community that has a well-organized mental health program in its schools, churches, and other activities is struggling to combat obstinancy and lessen tensions. There is a sinister relationship between the mental health problems involving present-day living and the psycological tensions being created throughout the world by dictatorships. Hoffman[4] states: "... To most of us war's aim and end is victory on the field. But to the Kremlin military action is but the most visible and spectacular zone of combat in an unremitting war against the free world. Herein lies our strange and new and often hidden danger—a danger that we cannot fend off by arms alone. We must know that for the Kremlin the military is only one of four fronts—each a battleground of implacable attack. These four fronts are the military, economic, political, and psychological."

In civil defense preparedness there are certain long-range psychological goals that must be emphasized in addition to the acute emergency phases. Communities with well-operating mental health programs are better prepared to accept sudden change and emotional shock than the ones that do not have them; thus, an interest in and forwarding of the existing mental health activity of a community is an imperative prerequisite of a civil defense program that takes into consideration the emo-

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Professor and Chairman, Department of Psychiatry and Neurology, the Medical College of Alabama.

Read before the Joint Meeting of the Section on Military Medicine and the Section on Surgery, General and Abdominal, at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 9, 1955.

The discussion of this paper was opened by Dr. Calvin Drayer, Philadelphia, and Col. Albert J. Glass, Washington, D. C.

[1] Wolff, H. G.: Changes in the Vulnerability of Tissue: An Aspect of Man's Response to Threat, National Institute of Health Annual Lectures, United States Department of Health, Education, and Welfare, 1953.

[2] Janis, I. L.: Psychological Aspects of Vulnerability to Atomic Bomb Attacks, U. S. Air Force Project RAND, D-369, Washington, D.C., Rand Corp., Jan. 15, 1951.

[3] Mental Health Implications in Civilian Emergencies: Report of Subcommittee on Civil Defense Community Services Committee, National Advisory Mental Health Council, May 1953, Public Health Service Publication 310, United States Department of Health, Education, and Welfare, National Institute of Mental Health, 1953.

[4] Hoffman, P. G.: Peace Can Be Won, Garden City, N. Y., Doubleday & Company, Inc., 1951, p. 93.

tional needs of people during a disaster.[5] In addition, such a procedure is a means of maintaining the interest of the citizenry in civil defense activity, in that the mental health program is directly involved with human interest events of daily living.

The nation, today, is called upon to play a vast number of unfamiliar roles and to create strange new parts for practically everyone. The American people are not accustomed to the ever-present possibility of being attacked on their homeland nor to being continuously involved in defensive and offensive alliances. The Americans do not know how to deal with their own power, nor how to appraise their own insecurity, much less to feel comfortable in the role of being constantly held responsible for the preservation of world peace.[6] Whether they are appropriately used or inappropriately used, adaptive and protective mechanisms operate only in relation to the present, in a manner determined by the past, and often with dangerous consequences for the future.[7] Psychological teaching of recent years has frequently pointed out that the studies of man as a growing, living, and social organism are producing a wealth of information that may bring about changes not only in the condition of human life but also in the social and personal characteristics of the individual himself. Such a situation has never been closer to reality than in this atomic era.

A well-organized disaster plan should not include the technique of crying havoc as an incentive to rational thinking. Culturally engendered anxiety and the methods of resolution become formalized, and it is quite possible the anxiety and tension ceases to be operative long before the tension-producing factors lose their potency. Still, there is probably too much emphasis on "panic" as a magic word.[8] It is unlikely that the American people would ever be frightened into a better state of preparedness, even though it is quite possible that casualties may be greater by reason of panic than as a result of the disaster itself. A population that is well-prepared, and has good morale and leadership, will still have a large percentage of the people temporarily overcome by fear. The degree and duration of that fear, as well as the prevention of mass panic itself, will depend in large measure on the level of mental health and efficiency of the civil defense system. The basic and foremost objective of that system is to establish within the American people, with assuredness, the desire and capacity to remain calm and orderly in the face of atomic catastrophy.

The fact that we cannot foretell what would be the psychological reactions of the American people in case of an atomic disaster is all the more reason intensive research and study should be continued in this realm. We might well approach this particular subject as we do the buying of fire insurance on our homes—hoping we will never need it, but fearing that we might! Whatever might be contributed toward psychological preparation for a major disaster is just that additional fire-fighting equipment and fire insurance at a lower premium.

UNDERSTANDING HUMAN EMOTIONS

Many of us are making it our common cause to understand more completely the nature of human emotions and emotional disorders as they are found in mental health and mental illness in the various economic, social, and occupational classes. Tyhurst [9] has pointed out the importance of determining how these classes of Americans would react to situations of community disaster and personal stress. To do this, we must come to a more common basis of understanding as to methodology and aims. There are certain fundamental and puzzling questions that concern us [7] such as: what is the nature of the so-called psychic trauma; what mechanisms can the neurophysiologist, the endocrinologist, and the experimental biologist discover to account for the residuals of intolerable stress imposed upon the immature organism, remaining as scars upon the personality perhaps for the duration of life; and how is it possible for the mother to shield her offspring effectively against these otherwise mentally injurious environmental stresses?

From their beginning, the two traditions of research originating in the classic studies of Cannon and Pavlov on the one hand, and of Freud on the other, have converged upon the same fundamental problem; namely, the fundamental significance of emotion. This is of considerable concern in facing the problem of the meaning of operational psychic trauma. This physiological tradition of Cannon and this psychodynamic tradition of Freud will eventually coalesce in spite of the well-known inertia and conservatism of thinking peculiar to the life sciences. This merger will be hastened when it is recognized that between the organic position and the psychodynamic position, there is another distinct viewpoint—the behavioral or biological position, which, apparently, is steadily gaining in importance.[7]

EFFECTS OF STRESS AND REACTIONS TO IT

Since Cannon's classic studies of the cat's emergency reaction to various stresses, much has appeared in the literature on the physiology of stress. It is not difficult to impose so-called controlled stress upon an organism in the laboratory, but it is extremely difficult or impossible to do so out of the laboratory. When such controlled stress is imposed, however, it is of logical necessity to pursue the organism into its normal living conditions, if the effect of the stress is to be determined for the total biological unit and not just for the isolated organ.

Repeated studies of stress and its effects on human beings have failed consistently to bring forth a satisfactory answer to the much sought-after question of why certain individuals withstand and others succumb to a stressful situation. In the laboratory the stressors commonly employed are such as may most easily be controlled and reproduced; for example, cold, treadmill exercise, electric shock. It is supposed that the organism, reacting as a computing machine, calculates the sum of stressors and reacts to the appropriate intensity. Such a built-in calculator, however, is not present in stressful situations beyond laboratory control, as in actual combat or an atomic disaster. It is then that the inborn instinct of self-preservation comes forth and assumes such duties, the action of which is unique to each individual.

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[5] An Introduction to the Psychiatric Aspects of Civil Defense, Report no. 19, Topeka, Kan., Group for the Advancement of Psychiatry, April, 1951.

[6] Spiegel, J. P.: Cry Wolf, Cry Havoc, Bull. Atomic Sc. **10:** 134-135; 144 (April) 1954.

[7] Lyddell, H.: Stress, Emotion and Mental Health, Annual Lecture for the National Institute of Mental Health, Bethesda, Md., April, 1954, to be published.

[8] Meerloo, J. A. M.: First Aid in Acute Panic States, Am. J. Psychotherapy **4:** 367-371 (July) 1951.

[9] Tyhurst, J. S.: Individual Reactions to Community Disaster: Natural History of Psychiatric Phenomena, Am. J. Psychiat. **107:** 764-il) 1951.

Training and cultural backgrounds develop in an individual relatively fixed ideas of how he is expected to appear, behave, react, and even feel. A person's reactions to what he perceives as dangerous are often out of keeping with his "ideas" of what he "ought" to do.[1] When he is stunned and bewildered, each individual reacts differently to trauma or sudden change in environment.[10] As to the nature of the so-called psychic trauma, it might be considered an injury, wound, shock, or resulting condition. The trauma might well be that which results from the sudden and unexpected bombing of a city. When in an unbearable situation to which the individual is unable to adjust temporarily, he might possibly react by panic. The dangerous situation and the subsequent conflict, which is at best only partly conscious, evokes unwittingly within the person an unsuitable protective reaction. Some will react with withdrawal, become seclusive and noncommunicative; others will react with confusion and marked disorganized behavior; others will respond to the stress in stride and will attempt a constructive resolution to the new situation.

It is the basic function of the mental apparatus to establish equilibrium and stability after a disturbance by external stimuli. The deleterious effect occurs when there is too high an influx of excitement and the individual is unable to discharge it; i. e., it is beyond the limits of his mastery. The limits of mastery in a new situation depend on the constitutional factors and previous experiences of the individual. As has been repeatedly pointed out, previous conditioning and experience will do much in alleviating the possibility of panic and confusion, by greatly aiding the person to master the new situation.

The traumatic effect can be heightened by waiting and anticipating, without a prior knowledge of what to expect, and it seems to be in direct relationship to the unexpectedness of the trauma. If an individual is prepared for a coming event, and has anticipated it in thought through a thorough knowledge of what might occur, he will more likely be able to accept the trauma when it comes and thus be able to overcome and resolve the situation constructively. During the period immediately after the catastrophic event, the individual who has been stunned and bewildered needs to ventilate, which is a child-like attitude of dependency; and to be permitted to do so is an essential adjunct to treatment at this phase. He wants to be given something—coffee, a cigarette, or a blanket; he wants to be looked after. The importance of the giving and nursing is not so much related to the actual kind of act as to the psychological meaning of the being cared for.[9] This dependency is generally transitory, and the individual is quite unwilling to talk about it a day or so later. The state is associated with the need to be with others and a disinclination to be left alone.

GROUP BEHAVIOR

Man, by inborn instinct, is a gregarious being. His entire life is dominated by contact with other people. When confronted by danger, his major drive to be freely accepted as a full-fledged member of the group is intensified. Yet, man's behavior in any group is psychologically different from that when he is alone. He does things as a member of a group that would be completely foreign to him without its influence. This behavior is adequately explained by the basic principles of group psychology.

In the ordinary sense of the word, crowd means a gathering of individuals irrespective of their genetic equipment and backgrounds or whatever chance may have brought them together. Under certain circumstances, and only under those circumstances, a group of men presents new characteristics very different from those of the individuals composing it. Sentiments and ideas of all persons in the gathering take one and the same direction, and the conscious personality of the individual disappears. A compositing of mental reactions and attitudes is formed, in all probability transitory, but presenting clearly defined characteristics. Such a group becomes a "psychological crowd" and forms as a single being. According to Freud,[11] a person in a group is brought under conditions that allow him to throw off the repressions of his unconscious instincts. In a sense, the conscious disappears; the individual develops a sentiment of great power that allows him to give free reign to instincts, that, had he been alone, would have been controlled. He sacrifices his interest to the collective interest.

The absence of community organization, education, principles of mental health, and factual orientation in the situation faced may add immeasurably to the impact of stress and the possibility of panic. When a "crowd" is tense and insecure and when imagined danger has not been dispelled, the stage is set for the introduction of stimuli to react by panic. The members of the panicked group may act together, but the action probably is illogical, irrational, and dangerous to the group members.[12]

CONCLUSIONS

We are discovering the price we are paying for our democratic way of life and, as men before us discovered, we find that the attitudes, the thought patterns, and intellectual preparation that served us well in the past are not good enough to serve in the future. We should appreciate what our actions and goals are costing us—that if we choose, we may pay for them in pain and illness; but that, through education and mental health, we will decide what actions and goals are faulty and unreal, then alter our direction and pace accordingly.

Democracy is a homely, personal thing. Its strength depends utterly upon the individual, his wisdom and qualities of moral goodness. The psychological, emotional, and spiritual resources of mature, responsible citizens will be of critical importance to the survival of our nation should atomic war reach our homeland. An effective level of common purpose and sound state of mind, achieved through nationwide civil defense and mental health programs, is essential in maintaining the will to victoriously resist the enemy.

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[10] Cameron, D. C.: Psychiatric Implications of Civil Defense, Am. J. Psychiat. **106**: 587-593 (Feb.) 1950. Psychological First-Aid in Community Disasters, Washington, D.C., the American Psychiatric Association, Committee on Civil Defense, 1954.

[11] Freud, S., cited by Farnsworth D. L.: Medical Progress: Mental Health Aspects of Civil Defense, New England J. Med. **247**: 209-216 (Aug. 7) 1952.

[12] Caldwell, J. M.; Ransom, S. W., and Sacks, J. G.: Group Panic and Other Mass Disruptive Reactions, U. S. Armed Forces M. J. **2**: 541-567 (April) 1951.

RESPONSE OF HUMAN BEINGS ACCIDENTALLY EXPOSED TO SIGNIFICANT FALL-OUT RADIATION

Commander Eugene P. Cronkite (MC), U. S. N., Victor P. Bond, M.D., San Francisco,
Commander Robert A. Conard, Lieut. N. Raphael Shulman, Lieut. Richard S. Farr, (MC), U. S. N.,
Stanton H. Cohn, Ph.D., San Francisco, Charles L. Dunham, M.D., Washington, D. C.
and
Lieut. Col. L. Eugene Browning (MC), U. S. Army

After detonation of a nuclear device in the Marshall Islands during the spring of 1954, radioactive material fell upon several neighboring inhabited atolls.[1] The fall-out material consisted of pulverized and incinerated coral (calcium oxide) coated with radioactive fission products, forced high into the atmosphere by the violence of the explosion. The particulate matter was then distributed over a wide area by the wind structure. The field of radiation resulting from the deposition of this radioactive material on the islands was sufficiently intense to result *in significant whole-body irradiation of the inhabitants.* In addition, the skin was contaminated with the material, and some of it was inhaled and ingested. The calculated whole-body dose of radiation in roentgens as measured in air and the amount of fall-out observed for each of the island groups is shown below. The exposed American servicemen were returned to duty after extensive medical examinations at Kwajalein and at the Tripler General Hospital, Honolulu, T. H. The Utirik people were returned to their native atoll after the initial period of observation. The Rongelap and Ailinginae residents were moved to Majuro Atoll for temporary occupation of dwellings built for them. These gamma ray doses were calculated from field instrument readings taken at the time of evacuation and decay schemes appropriate for the estimated times of exposure. For the sake of brevity, details will be presented only on the more severely exposed Rongelap group and the other groups will be referred to only for comparative purposes.

Calculated Whole Body Dose of Radiation

Island Group	Population	Whole-Body Dose in r	Fall-Out Observed
Rongelap	64 Marshallese	175	Heavy (snow-like)
Ailinginae	18 Marshallese	69	Moderate (mist-like)
Rongerik	28 American servicemen	78	Moderate (mist-like)
Utirik	157 Marshallese	14	None

The detonation of the device was observed in the early morning, and hours later the exposed individuals noticed a snow-like material falling from the sky; this continued for several hours. The material was visible on the ground and sifted into the lightly constructed thatched-roof houses. The material whitened the hair and clung to the skin. During the night following the explosion and for the next two days, about two-thirds of the population developed nausea and 10% vomited and had diarrhea. During this period also, many developed itching and burning of the skin and some reported burning of the eyes with lacrimation. Supervised decontamination and medical care was not possible until the exposed individuals were evacuated to the nearby naval base at Kwajalein. *By this time, initial symptoms had completely* subsided.

An emergency medical team, composed largely of naval personnel from the Naval Medical Research Institute and the U. S. Naval Radiological Defense Laboratory, was organized and sent to the area, arriving on the ninth day after exposure. Complete initial histories and physical examinations and frequent follow-up examinations and treatment for medical conditions were carried out on all personnel. In addition, hematological studies to assay the degree of radiation damage and urinary excretion studies for radioactive materials were performed. It was apparent from initial blood studies that significant radiation had been received, and by 12 to 14 days further evidence of radiation injury was apparent in the form of skin lesions and epilation. With the exception of the development of skin lesions and epilation, physical examinations at no time revealed findings in any group that could be attributed with certainty to radiation.

CLINICAL OBSERVATIONS, THERAPY, AND HEMATOLOGICAL FINDINGS

Since the degree of depression of peripheral blood elements is believed to be the best index of severity of radiation injury, systematic serial determinations were carried out. These determinations consisted of total leukocyte, neutrophil, lymphocyte, and platelet counts and hematocrit determinations. Control groups, as comparable as possible to the exposure groups in respect to age, race, sex, and background, were selected. Findings are expressed in terms of percentage of control values. Significant age and sex difference in blood cell counts were noted in the control groups, and the data are presented in accordance with the differences noted.

The absolute neutrophil count (fig. 1) of both younger and older age groups fell to a value of approximately 70 to 80% of that of the controls during the second week, followed by a period of fluctuation until the fifth week. At this time the beginning of a second depression was noted for both age groups, and a low value of approximately 50% of that of the controls was reached. The

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From the Naval Medical Research Institute, Bethesda, Md., and U. S. Naval Radiological Defense Laboratory, San Francisco. Commander Cronkite is now at Brookhaven National Laboratory, Upton, N. Y. Lieut. Farr is now at the University of Chicago, School of Biological and Medical Sciences.

Read before the Section on Military Medicine at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

Drs. David A. Wood, University of California Hospital, San Francisco, and Edward L. Alpen, U. S. Naval Radiological Defense Laboratory, San Francisco, made the histopathological evaluation of the skin lesions.

The discussion of this paper was opened by Dr. Lee E. Farr, Upton, N. Y., and Major Carl Hanson, Washington, D. C.

[1] Effects of High-Yield Nuclear Explosions, statement by Lewis L. Strauss, chairman, and report by United States Atomic Energy Commission, Atomic Energy Commission, Feb., 1955.

level was maintained at approximately 75% of the control values from the 7th week to the end of the critical period of observation (10th week). The values for the lower age group were below those of the older age group throughout most of the period of observation. The absolute lymphocyte count (fig. 1) of the older age group had fallen by the third day to a value of approximately 55% of the control value. This value was maintained throughout the study, with no definite evidence of an upward trend. The values for the younger age group also fell before the third day to a value of approximately 25% of the control value, after which there was a significant upward trend, recovery being more rapid in the younger age group. Since the mean lymphocyte counts remained essentially constant throughout the study, the fluctuation in total white blood cell count was a reflection of changes in the neutrophil component (fig. 1).

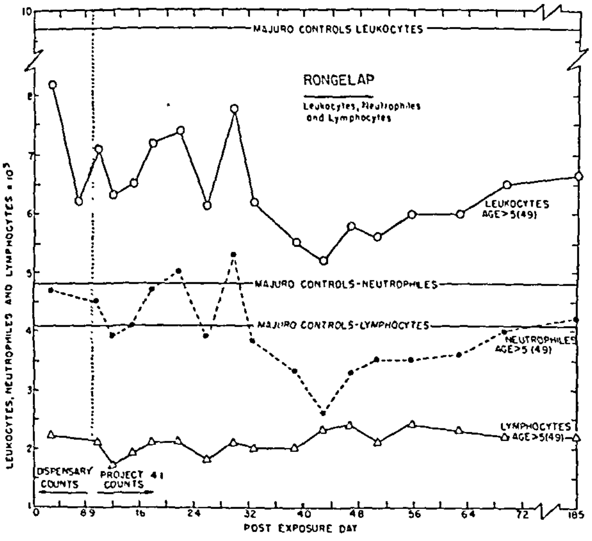

Fig. 1.—Mean leukocyte changes in highest exposure group (64 people).

The sequelae of depression of hemopoiesis are generally considered as the major source of morbidity and mortality from whole-body radiation injury.[2] Therefore, in view of the low leukocyte counts that developed in the Rongelap people, the use of prophylactic administration of antibiotics was given careful consideration. Twenty-seven individuals had absolute neutrophil counts of 2,500 per cubic millimeter or less at some time during the period of observation. Temporary depressions as low as 700-1,000 were observed. Prophylactic admininistration of antibiotics was not instituted because all individuals were under continuous medical observation and it was felt that such drugs might obscure medical indication of treatment and lead to the development of drug-resistant organisms. An epidemic of upper respiratory infection developed between the 27th and 47th days after exposure in all of the exposed groups. Fifty-eight per cent of the Rongelap people were involved. The disease did not appear to be more severe in this than in the other less exposed groups. There was no correlation between leukopenia and incidence of infection.

Platelets were first counted 10 days after exposure (fig. 2), at which time the level in the females were approximately 60% of the appropriate control group. After this, the platelet count fell, reaching a low of approximately 30% of the control value during the fourth week. (At this time counts in 20% of the Rongelap people were below 90,000 platelets per cubic millimeter.) The platelet level rose during the fifth and sixth week and had reached the value noted for the initial counts on the 10th day. A second decrease in platelets developed during the seventh and eighth week, and values remained at approximately 70% of the control values during the remainder of the observation period. The pattern of the platelet counts in the male groups was similar to that noted for the females. Counts of the lower age group, males, were consistently higher than those of the adult group in absolute counts but consistently lower as percentage of control.

There was no evidence of hemorrhage into tissues, even though in 11 individuals platelet count levels reached between 35,000 and 65,000 per cubic millimeter. Two women menstruated when their platelet counts were 150,000 and 130,000 per cubic millimeter respectively. Both experienced excessive menstrual bleeding, insufficient to cause them concern, which subsided without therapy.

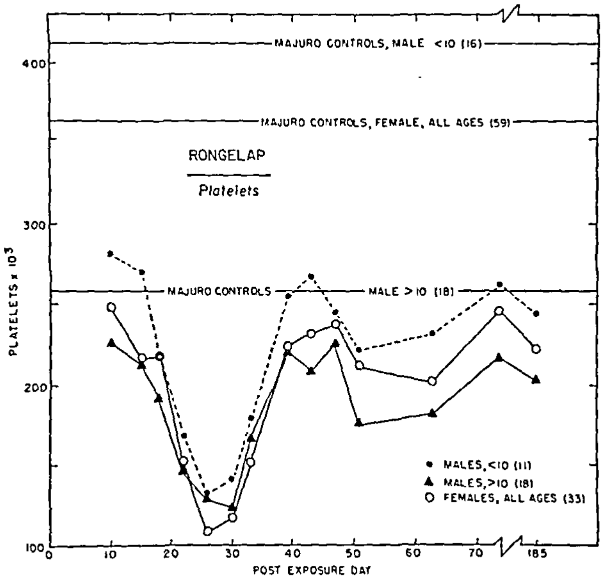

Fig. 2.—Mean platelet changes in highest exposure group (64 people).

Six months after the accident, blood cell counts showed only slight increase over previous ones during the last week (10th) of the initial observation period and were still below control levels. Follow-up studies at one year after the accident showed that the neutrophil counts of the exposed individuals were back to the control level; however, the lymphocytes, monocytes, eosinophils, and platelets were still below control levels, though they were higher than after six months. Hematocrit determinations first done on the 22nd day were slightly below those of the control population. A significant trend in values after this time could not be detected statistically. The less-exposed island groups showed similar, but in most cases less pronounced, hematological change that was consistent with the lower doses calculated for these groups.

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[2] Dunham, C. L.: Cronkite, E. P.; LeRoy, G. V., and Warren, S.: Atomic Bomb Injury: Radiation, Council on National Emergency Medical Service, J. A. M. A. **147**: 50 (Sept. 1) 1951. Cronkite, E. P., and Brecher, G.: Defects in Hemostasis Produced by Whole Body Radiation, in Clotting and Allied Problems: Transactions of the Fifth Conference, January 21 and 22, 1952, edited by Joseph E. Flynn, New York, Josiah Macy, Jr., Foundation, 1952. Bond, V. P.; Silverman, M. S., and Cronkite, E. P.: Pathogenesis and Pathology of Radiation Infection, Radiation Res. **1**: 389, 1954. Cronkite, E. P., and Brecher, G.: The Protective Effect of Granulocytes in Radiation Injury, Ann. New York Acad. Sc. **59**: 815, 1955.

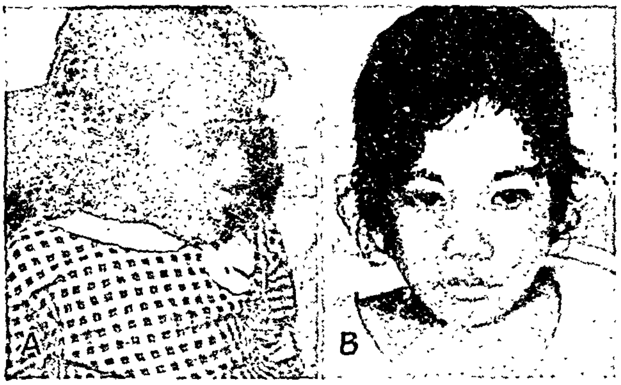

Fig. 3.—*A*, epilation in 7-year-old girl at 28 days. *B*, six months later, showing complete regrowth of hair.

The time course of hematological changes corresponded most closely with the low-dose Japanese groups exposed to radiation from the Hiroshima and Nagasaki bombs[3] in which definite signs of severe radiation exposure were present in some individuals but in which no mortality occurred. Comparison with hematological data in Japanese groups in which fatalities occurred make it probable that exposure in the highest exposure group of Marshallese was moderately severe, probably within 50 to 100 r of the level where some fatalities would have resulted. The skin and internal radioactive contamination were considered not to have contributed significantly to the depression of the hematological elements.

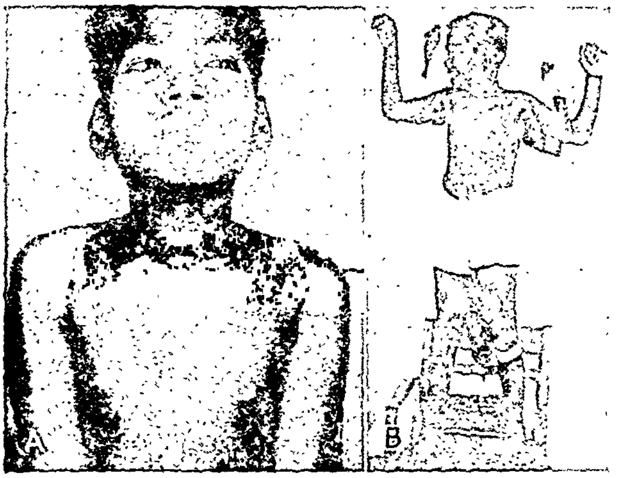

Fig. 4.—*A*, pigmented lesions of neck and antecubital fossae in 13-year-old boy (29 days after exposure). Desquamation with depigmentation of neck lesions has begun. *B*, extensive lesions in 13-year-old boy at 45 days after exposure.

The body weight of individuals in the Rongelap and Ailinginae groups was followed routinely. Adults as well as children lost some weight during the period of observation in spite of the fact that they lived inactive lives and ate heartily. Whether the failure to gain weight was connected with radiation or change in environment is open to question. Four women in the Rongelap group were pregnant when brought to Kwajalein. None of these women had abnormal symptoms referable to radiation. All of the pregnancies have since terminated in delivery of apparently normal babies.

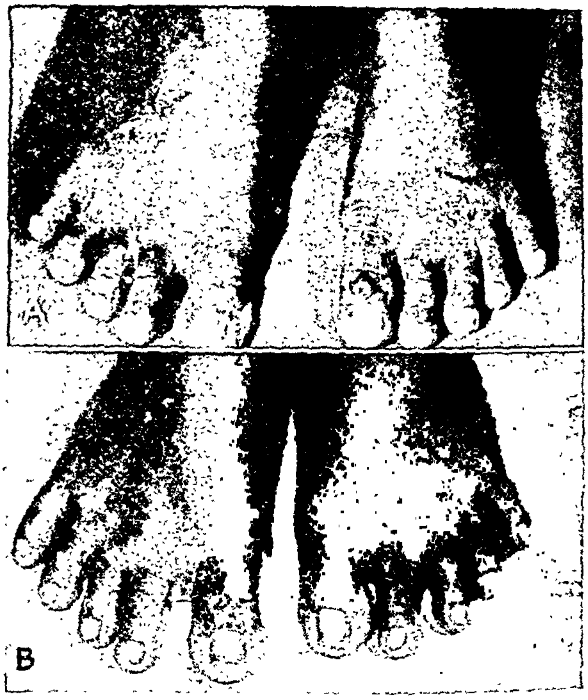

Fig. 5.—*A*, hyperpigmented raised plaques and bullae on dorsum of feet and toes at 28 days. One lesion on left foot shows deeper involvement. Feet were painful at this time. *B*, six months later. Foot lesions have healed with repigmentation, except for depigmented spots persisting in areas where deepest lesions were.

SKIN LESIONS AND EPILATION

Irradiation of the skin resulted largely from beta radiation from the fall-out material deposited on the skin. Due to the complex composition of the radioactive materials, and because of other uncertainties, it was impossible to calculate the skin dose accurately. The dose was sufficiently large, however, to produce epilation and widespread lesions of the skin in 90% of the Rongelap group, beginning about 12 to 14 days after the exposure. In the less heavily exposed groups (Ailinginae and Rongerik), the lesions did not appear until approximately 20 days after the accident. In the Utirik group, radiation lesions of the skin did not appear. The lesions occurred primarily on the exposed parts of the body not protected by clothing. Those who remained under shelter during the fall-out developed less severe or no lesions. Some protection was afforded those who bathed during this period. Almost simultaneously with develop-

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3. LeRoy, G. V.: Hematology of Atomic Bomb Casualties, Arch. Int. Med. 86: 691 (Nov.) 1950. Oughterson, A. W., and others: Medical Effects of the Atomic Bombs, report of the Joint Commission for Investigation of the Effects of the Atomic Bomb in Japan, vol. 3 and 5, Office of Air Surgeons, Army Institute of Pathology, Atomic Energy Commission, 1951.

4. Knowlton, N. P., Jr., and others: Beta Ray Burns of Human Skin, J. A. M. A. 141: 239 (Sept. 24) 1949.

5. Robbins, L. L., and others: Superficial "Burns" of the Skin and Eyes from Scattered Cathode Rays, Radiology 46: 1, 1946. Low-Beer, B. V. A.: External Therapeutic Use of Radioactive Phosphorous: 1. Erythema studies, ibid. 47: 213, 1946. Wirth, J. E., and Raper, J. R.: Chapter 12, in Biological Effects of External Beta Radiation, edited by . E. Zirkle, ed. 1, New York, McGraw-Hill Book Company, Inc., 1951.

ment of skin lesions, spotty epilation of the scalp was noted (fig. 3*A*). Epilation was usually accompanied or preceded by lesions of the scalp. This was more extensive and severe among the children (birth to 15 years). Over 90% of the children showed some degree of epilation, as compared to 28% in the older age group. Regrowth of hair of normal color and distribution was noted beginning about nine weeks after irradiation and was complete six months after the accident (fig. 3*B*).

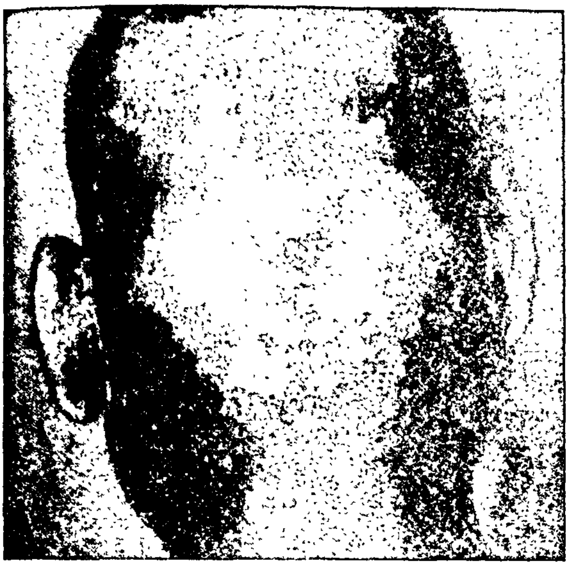

Fig. 6.—Desquamation of back of scalp at 28 days. Epilation occurred earlier in desquamated area. Note persistent ulceration of left ear.

The developing lesions did not follow the identical course as observed by Knowlton and co-workers[4] in individuals after handling concentrated fission products or after other beta burns.[5] Primary and secondary erythema was not observed. The lesions showed differences in latent periods before appearance on different parts of the body and appeared in roughly the following sequential order: scalp, neck, axillary region, antecubital fossae, feet, arms, legs, and trunk. The neck and scalp lesions were most common; however, a substantial number of antecubital fossae lesions and foot lesions were seen. Lesions on the flexor surfaces tended to appear before lesions on extensor surfaces. These differences in latent periods did not appear to be related entirely to the dose to the skin, since severe foot lesions, presumably caused by the foot receiving a larger dose of radiation, did not appear until after other less severe lesions.

The first indication of a lesion was an increase in pigmentation in the form of macules, papules, and raised plaques (fig. 4*A*). Usually these dark pigmented lesions had a dry, thickened, leathery feel. Most lesions were superficial. After several days, dry, scaly desquamation developed from the center of the lesion outward. Desquamation left depigmented areas similar in texture to the surrounding skin (fig. 4*B*). During the next few weeks, the lesions gradually became repigmented and the skin became relatively normal in appearance. Approximately 20% of the group developed deeper lesions. These were seen on the neck, scalp, and ear, and most frequently on the feet (fig. 5 and 6). These lesions were painful and were characterized by wet desquamation with weeping and crusting, and, in some foot lesions, desquamation was preceded by bullous formation (fig. 5*A*). Some lesions became secondarily infected; however, all lesions except one ear lesion healed rapidly and reepithelized in a week or 10 days. The ear lesion took about four months to heal. Repigmentation gradually took place in most lesions, and some of the healing lesions, particularly on the neck, showed development of hyperpigmentation of a grayish, dusky color and a thickening of the skin with "orange-peel" appearance.

Biopsy specimens taken from lesions during the third to fourth week revealed histopathological changes consistent with radiation damage (fig. 7). Spotty transepidermal damage with atrophy and flattening of the rete pegs was a common finding, with areas of relatively normal skin between, emphasizing the particulate nature of the radioactive material. Cells of the malpighian layer showed pleomorphic nuclei, pyknosis, and cytoplasmic halos. Focal disorganization of the malpighian and basal layers was present in extensively damaged areas. In the dermis, telangiectatic vessels were noted where the overlying epidermis showed greatest damage. There was mild edema of the pars papillaris with lymphocytic infiltration, particularly around the telangiectatic vessels. Atrophy of hair follicles was observed.

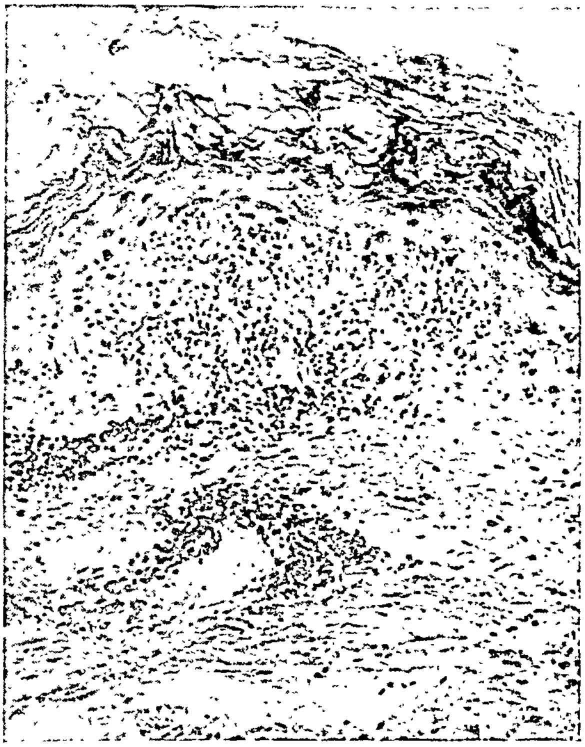

Fig. 7.—Photomicrograph of pigmented skin lesion three weeks after exposure (× 100). Extensive transepidermal damage with less involved areas on either side. Loose lamination of stratum corneum, absence of stratum granulosum, and disorganization of malpighian layer. Dermis shows mild edema of pars reticularis, indistinct capillary loops, moderately pronounced perivascular cellular infiltrate, and mild telangiectasia.

Follow-up studies at six months and one year showed that the hyperpigmentation had in most cases disappeared. At the site of deeper foot lesions and the ear lesions, there were pink-to-white areas that had not repigmented (fig. 5*B*). In these areas the skin appeared slightly atrophic. Treatment of the skin lesions consisted of daily cleansing and symptomatic therapy with the exception of locally applied antibiotic ointments for infected lesions and in one case parenterally given penicillin.

The possibility that cancer might develop at the site of some of these lesions must be considered. Favoring such development are the long life expectancy of the numerous children in the exposed group, constant exposure to tropical sunlight, and the possible influence of additional sublethal whole-body exposure. Against such development are the superficial nature of the lesions, rapid healing with little in the way of residual gross defects, and only minimal evidence of histological damage by six months.

Pigmentation of the semilunar area of the fingernails and toenails was observed about the 23rd day in most of the Marshallese in the higher exposure groups and in the five American Negroes but in none of the white Americans. The pigmentation was beneath the nail and progressed distally with growth of the nail. A similar phenomenon has been observed in a Negro woman after local therapeutic irradiation.[6]

INTERNAL RADIATION HAZARD

Radiochemical analysis of numerous urine samples of exposed personnel showed that the degree of internal absorption of radioactive materials was roughly proportional to the calculated external dose and, therefore, to the concentrations of air-borne fission products. The degree of internal radiation hazard was too low to have contributed significantly to the acute radiation syndrome observed. The concentration and type of internal radioactive contaminants minimize the probability of any significant long-term effects from the internal radiation.

SUMMARY AND CONCLUSIONS

After detonation of a thermonuclear device in the Marshall Islands in the spring of 1954, radioactive fall-out occurred over an area of thousands of square miles beyond the range of thermal and blast injury. Marshallese and Americans were accidentally exposed on islands in this area, receiving whole-body gamma radiation, beta radiation injury to skin, and minimal internal contamination. The highest dose (an estimated 175 r) was received by a group of 64 Marshallese. The dose of radiation received proved to be sublethal. Though there was significant depression of hemopoiesis, no clinical signs or symptoms developed that could be attributed with certainty to this effect. Prophylactic administration of antibiotics or other specific therapy was not found to be indicated.

Skin lesions and epilation developed in 90% of the group beginning about two weeks after the exposure. The lesions occurred largely on exposed parts of the body not protected by clothing, and varying degrees of protection were also afforded those who remained indoors or bathed during the fall-out period. Most of the skin lesions were superficial and exhibited pigmentation; dry, scaly desquamation; and rapid healing with little pain. Some lesions were deeper, exhibiting wet desquamation, and a few became secondarily infected. Treatment was largely palliative except for use of antibiotics for secondarily infected lesions. Histopathological examination of lesions showed changes consistent with radiation damage. Bluish-brown pigmentation was noted in the fingernails and toenails of the dark-skinned people but not in the white Americans. Minimal amounts of radioactive material were detected in the urine. The internal deposition was insufficient to contribute significantly to the acute reaction, and it is believed there is no long-term hazard. Examinations conducted one year after the exposure revealed these people to be in generally good health. Slight depression of lymphocytes and platelets persisted. A few pigment aberrations and minimal atrophy remained at the site of the deeper skin lesions.

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[6] Sutton, R. L., Jr.: Transverse Band Pigmentation of Fingernails After X-Ray Therapy, J. A. M. A. **150**: 210 (Sept. 20) 1952.

RADIOIODINE TREATMENT OF EUTHYROID CARDIAC DISEASE

FOUR YEARS OF EXPERIENCE WITH TWO HUNDRED THIRTY-ONE PATIENTS

Henry L. Jaffe, M.D., Maurice H. Rosenfeld, M.D., Frederick W. Pobirs, M.D.
and
Laurence J. Stuppy, M.D., Los Angeles

Two hundred thirty-one euthyroid, seriously ill cardiac patients have been treated with radioactive iodine (I^{131}) since February, 1950, in the department of radiation therapy and the cardiac outpatient department of the Cedars of Lebanon Hospital in Los Angeles. Of particular interest is the analysis of the original 100 patients treated four years ago.

Radioiodine treatment for euthyroid cardiac invalids was pioneered by Blumgart and his associates in March, 1947. They reported, in August, 1952, their results in the treatment of 39 patients followed for 40 months.[1] In April, 1951, Wolferth and his group [2] gave account f 28 patients treated with radioiodine for intractable angina pectoris. Stuppy,[3] Jaffe,[4] Pobirs,[5] and Rosenfeld [6] reported upon 95 treated patients in November, 1951, and upon end-results in 100 patients in June, 1952.[7] In 1952, Chapman [8] described 23 treated cases. Serber and his group [9] reported 24 cases in February, 1953. Blumgart [10] gave the chairman's address of the Section on Internal Medicine at the annual convention of the American Medical Association, June, 1954, de-

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From the Radiation Therapy Department and Department of Medicine, Cedars of Lebanon Hospital.

This work was supported by grants in memory of Helen W. Daniels and Mary Arnold.

[1] Blumgart, H. L., and Freedberg, A. S.: Lewis A. Conner Memorial Lecture: Heart and Thyroid: With Particular Reference to I^{131} Treatment of Heart Disease, Circulation **6**: 222-237 (Aug.) 1952.

scribing the results in treatment of 1,070 patients from 47 clinics, 64% of whom were observed for longer than one year. Published reports by these authors have been favorable in respect to the treatment of angina pectoris, and, with the exception of Serber,[9] the reports have also been favorable in respect to the treatment of severe congestive failure. Although Wolferth [2] reported upon only 28 patients treated for angina pectoris, he commented in his paper that he and his associates were convinced that radioiodine had a place in the treatment of severe intractable congestive heart failure.

SELECTION OF PATIENTS

Blumgart and his associates [1] have stressed the importance of selecting only patients in whom the disease has been relatively stationary for months or years. They cite as especially unfavorable such rapidly progressive diseases as malignant hypertension and syphilitic aortitis. Other contraindications in their opinion are existing hypothyroidism, active rheumatic fever, recent myocardial infarction, bronchiectasis, cirrhosis of the liver, and emotional instability. Wolferth and his associates [2] require the following conditions before they are willing to apply radioiodine to patients with angina pectoris: 1. The anginal syndrome is so severe that the patient is incapacitated from earning a living, or is awakened so frequently at night that adequate rest is impossible. 2. Response to a careful regimen of life and adequate medicinal treatment has been unsatisfactory. 3. The condition has lasted long enough so that spontaneous improvement is unlikely. 4. No signs of hypothyroidism are present and the uptake of I^{131} in a tracer dose is within normal limits. 5. The blood cholesterol level is not abnormally high. 6. The patient has demonstrated his willingness to cooperate by refraining from using tobacco to excess and by adhering to a low-fat diet.

Serber and his group [9] accepted euthyroid patients with severe recurring angina or repeated episodes of congestive failure uncontrolled by the usual medical means. The criteria of these authors are all excellent guides. We feel that to use radioiodine in the moribund patient is inadvisable, because hypothyroidism can be produced only gradually. In commenting upon the cases of Chapman, Paul D. White [11] stated that radioiodine should be used only for severely ill patients in whom angina pectoris has recurred over a long period of time (more than a year), or for those patients with extreme intractable congestive failure. The ability of collateral circulation to develop and angina to improve spontaneously makes the evaluation of radioiodine treatment even more difficult; but, he stated, treatment is symptomatic, and most patients treated have improved.

High cholesterol blood levels may not be proper grounds upon which to exclude patients from radioiodine treatment. It is likely that constitutional hypercholesteremia in certain euthyroid persons may lead to early atherosclerosis and cardiac disease; however, it is not established that hypercholesteremia of the degree obtained in relative hypothyroidism from radioiodine therapy will accelerate this process. Blumgart and associates [1] found no evidence of increased atherosclerosis in autopsies of five patients with rheumatic heart disease who had been hypothyroid from 1 to 11 years. We have had no autopsies of patients who were suitable for providing us with this kind of information.

DESCRIPTION OF PATIENTS AND THEIR MANAGEMENT

Patients in our series were treated for severe angina pectoris or severe congestive heart failure or for a combination of both. A few patients treated suffered from paroxysmal acute pulmonary edema. Several of these patients with serious heart disease also had troublesome cardiac arrhythmias poorly controlled by drug therapy. The etiology of our cases was rheumatic, hypertensive, arteriosclerotic, congenital, and pulmonary. All of the patients had advanced heart disease and had not responded to the usual modes of therapy. Patients who had active rheumatic fever, or recent coronary occlusions, or who were already hypothyroid were not accepted. Patients with cardiac disease and hyperthyroidism who were treated with radioiodine were not included in this series for analysis.

The first group of 100 patients has been under observation for four years. The second group of 131 patients has been observed from six months to three years, with at least half this group followed for one year. The average follow-up time for all 231 patients was 29 months. Of the 231 patients, 51 were followed medically in the cardiac outpatient department. The other 180 were private patients who were followed by their own physicians. The same plan of management was used for clinic and private patients.

The rationale of treatment is to produce a state of beneficial relative hypothyroidism by lowering the total metabolism of the body, so that the heart has less work to do. Therapy is only symptomatic, and the condition of the heart is in no way changed or cured by radioiodine. In conjunction with radioiodine therapy all other modes of cardiac treatment are given as indicated. After radioiodine treatment, our practice has been to avoid severe symptomatic hypothyroidism, prescribing where necessary thyroid extract in doses of 1/10 to ½ grain (6 to 30 mg.) daily. The clinical courses of the patients have been most carefully followed to detect the earliest symp-

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[2] Wolferth, C. C.; Chamberlain, R. H., and Mead, J. J.: Radioactive Iodine in Treatment of Angina Pectoris, Pennsylvania M. J. **54**: 352-358 (April) 1951.

[3] *Stuppy, L. J.: Radioiodine Treatment of Euthyroid Cardiac Disease:* Introduction, Ann. West. Med. & Surg. **5**: 913-916 (Nov.) 1951.

[4] Jaffe, H. L.: Multiple Small Dose Radioiodine Technic for Treatment of Severe Cardiac Disease in Euthyroid Patients, Ann. West. Med. Surg. **5**: 916-919 (Nov.) 1951.

[5] Pobirs, F. W.: [Radioiodine Treatment of Euthyroid Cardiac Disease]: Clinical Course and Illustrative Cases, Ann. West. Med. & Surg. **5**: 919-922 (Nov.) 1951.

[6] Rosenfeld, M. H.: Results Obtained by Treating Severe Cardiac Disease in Euthyroid Patients with Radioiodine, Ann. West. Med. & Surg. **5**: 923-925 (Nov.) 1951.

[7] Jaffe, H. L.; Rosenfeld, M. H.; Pobirs, F. W., and Stuppy, L. J.: Radioiodine in Treatment of Advanced Heart Disease: End Results in One Hundred Patients, J. A. M. A. **151**: 716-720 (Feb. 28) 1953.

[8] Chapman, E. M., in Case 220: Angina Pectoris: Treatment by Radioactive Iodine, Cases from the Medical Grand Rounds, Massachusetts General Hospital, Am. Pract. **3**: 751-753 (Sept.) 1952.

[9] Serber, W.; Isard, H. J., and Bergelson, V. D.: Radioiodine Treatment of Euthyroid Patients with Angina and Congestive Heart Failure, *J. Albert Einstein M. Center* **1**: *89-93 (Feb.)* 1953.

[10] Blumgart, H. L.; Freedberg, A. S., and Kurland, G. S.: Treatment of Incapacitated Euthyroid Cardiac Patients with Radioactive Iodine: Summary of Results in Treatment of 1,070 Patients with Angina Pectoris or Congestive Failure, Chairman's Address, J. A. M. A. **157**: 1-4 (Jan. 1) 1955.

[11] White, P. D., in Case 220: Angina Pectoris: Treatment by active Iodine, Cases from the Medical Grand Rounds, Massa General Hospital, Am. Pract. **3**: 751-753 (Sept.) 1952.

toms of hypothyroidism and to relieve these as much as possible, even before laboratory tests have been definitely positive.

The cooperation of the patient is essential. With the symptoms of his weakened heart masked by the lowered metabolic rate, he might be tempted to expend energy foolishly. We describe for each patient the complete plan of treatment so he knows that this therapy is merely an attempt to lower the metabolic rate of the body and thereby lessen the strain on the heart. He is instructed to recognize the signs of myxedema, such as coldness of the extremities; swelling of the eyelids, face, and tongue; thickened speech; muscle aches; joint pains; bloating; and extreme fatigue. As soon as he realizes any such symptoms in himself, he reports them to his internist, who may then prescribe the proper thyroid medication to control these undesirable symptoms.

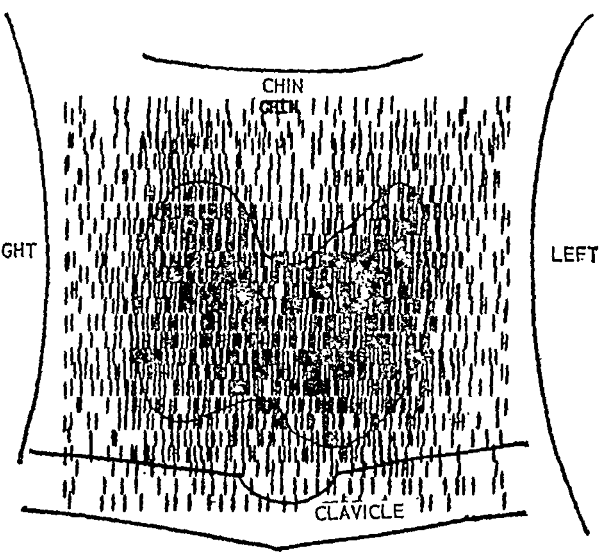

Fig. 1.—"Thyrogram" (diagram of the thyroid gland made by a scintillation counter) made 24 hours after administration of a tracer dose of radioactive iodine (I^{131}).

TECHNIQUE OF RADIOIODINE THERAPY

A tracer dose of 5 μc of I^{131} is given orally to the patient in the department of radiation therapy, and the radioiodine thyroid gland 24-hour uptake is measured. A second dose of radioiodine of 500 μc is given orally after the uptake study has been completed, and a "thyrogram" (silhouette of the thyroid gland made by a scintillation counter[12]) is made the next day (fig. 1). This provides a diagram of the approximate size, shape, and degree of the uptake of the entire thyroid gland. Radioiodine, averaging 6 mc. per dose, is given orally each week until the patient has a total of 30 mc. This is called the first course of treatment. Previous to the thyrogram technique, we had to rely on clinical and uptake studies and other laboratory data for the determination of the effect of the first course of radioiodine. This necessitated waiting two to three months before the post-treatment thyroid uptake test could be done, since there was too much residual radiation activity of the gland *to allow doing an uptake study* before the end of the two-month interval. Now it is possible to check the gland size and function one month after the first course of treatment (fig. 2). If the patient has not improved and the thyrogram indicates that the thyroid gland is still functioning normally (fig. 3) a second course of five weekly oral doses of 6 mc. of I^{131} is prescribed. A third thyrogram is made and the patient's progress evaluated one month after the second course. If necessary, a third course of I^{131} is prescribed, unless the patient already has signs of hypothyroidism.

The size of the dose of radioiodine used varies from clinic to clinic. We prefer to give 6 mc. oral doses of I^{131} at weekly intervals until the patient has received a total of 30 mc. Other clinics have given as much as 100 mc. in a single dose. We have chosen the small dose technique to avoid the danger of suddenly releasing large amounts of thyroxin from the destroyed gland into the blood stream. This might produce a temporary increase in metabolism that in a patient with severe cardiac disease could be detrimental, or even fatal. Another undesirable side-effect of larger doses of I^{131} is radiation thyroiditis, with an increased metabolic rate. In our first 100 patients with this plan of dosage the incidence of thyroiditis was low, and we found little evidence of temporary thyrotoxicosis subsequent to I^{131} therapy. Bone marrow depression is another possible hazard of massive therapeutic doses of I^{131}, but smaller doses have not endangered the patient in this way.

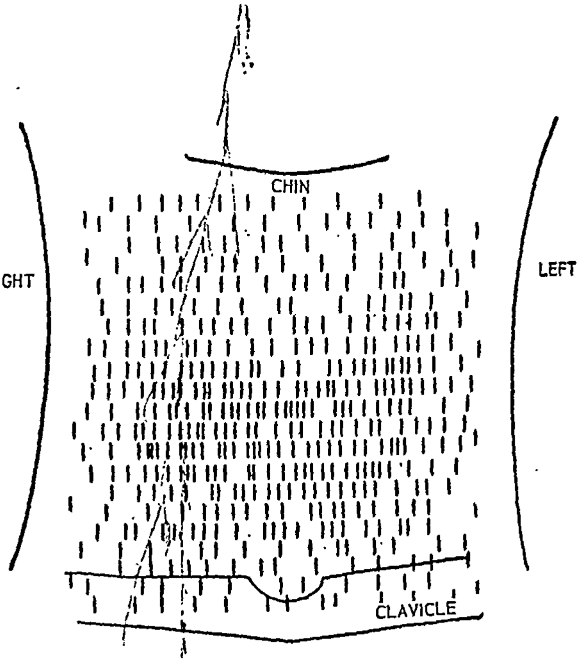

Fig. 2.—Thyrogram made two months after completion of the first course of radioactive iodine treatment. A total of 30 mc. in divided doses was given between Oct. 23 and Nov. 27, 1953. Almost complete reduction in size and function of both lobes is noted.

Safeguards against radiation are necessary when any radioactive material is used therapeutically. Single doses as large as 20 to 100 mc. make the patient a focus of considerable beta and gamma ray activity, and safe treatment usually means hospitalization of these patients so that trained personnel can handle the disposal of excreta. Smaller doses do not produce this problem, since I^{131} has a half-life of eight days, and therefore most persons may be treated as outpatients.

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[12] Allen, H. C., Jr.; Libby, R. L., and Cassen, B.: The Scintillation in Clinical *Studies of Human* Thyroid Physiology Using I^{131}, [illegible] **11**: 492-511 (May) 1951.

Apparently the radiobiological time factor in euthyroid cardiac patients treated with I^{131} is independent of the size of the single dose or total dose.[13] Symptomatic relief occurred in a comparable interval after a single dose of 25 mc. or five weekly doses of 6 mc. The same percentages of excellent and good results were obtained with multiple small doses of I^{131} as with the single or multiple large doses totaling 100 mc. reported by other authors. Therefore, we have continued treating selected euthyroid incapacitated cardiac patients with a multiple small dose technique. Radioiodine should be used only in a laboratory completely equipped for handling radioisotopes where measurement instruments for calibration of the dosage are provided.

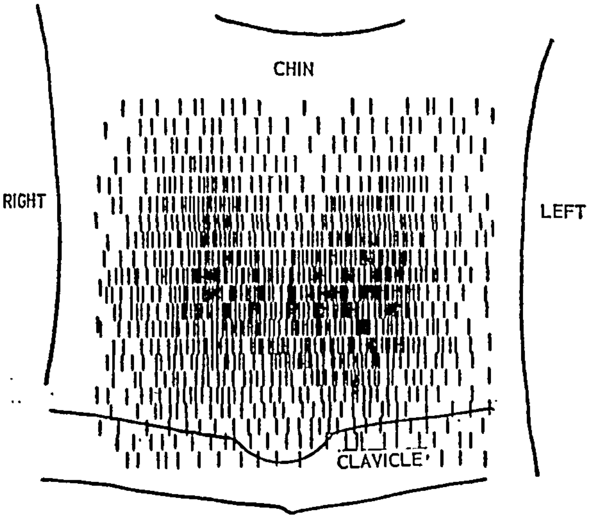

Fig. 3.—Thyrogram showing regeneration of thyroid tissue in both lobes to about 60% of the original size of the thyroid gland indicating gland has ability to recover its function after an apparently total medical thyroidectomy one month previous. A second course of radioactive iodine therapy was prescribed.

USE OF THYROID EXTRACT AND DEGREE OF HYPOTHYROIDISM DESIRABLE

It is our opinion, and the consensus of the opinion of most authors as recorded in the literature, that no greater degree of hypothyroidism should be permitted than adequate clinical relief of cardiac symptoms requires. Wolferth[2] and Serber[9] have used conservative radioiodine dosage. Serber has controlled myxedema where it developed in his patients with 15 to 30 mg. of thyroid extract with no interference with the beneficial effects of radioiodine therapy. Chapman[8] states that patients should not be allowed to develop myxedema but their basal metabolic rate should be kept at –20 to –25%, plasma bound iodine level at 2 to 3 mcg. per 100 cc., and radioiodine uptake at 10 to 20% in 48 hours.

Blumgart and associates,[1] however, according to their early reports have practiced permitting pronounced hypothyroidism, and in some instances complete myxedema, to develop in order to be sure that all thyroid tissue has been affected before administering 6 to 12 mg. of thyroid extract daily. They have adjusted the thyroid extract dosage to maintain the lowest metabolic level associated with the maximum relief of cardiac disease and the minimum discomfort from myxedema. They found in some of their patients that treating with sufficient thyroid extract to obviate symptoms of myxedema resulted in very little cardiac improvement over the pretreatment status. They then stated that in most of their patients they administered 6 to 30 mg. of thyroid extract to maintain basal metabolic rate levels of –20 to –25%. When our patients have shown symptoms of hypothyroidism we have prescribed doses of 12.5 to 30 mg. of thyroid extract daily. We insist that our patients not be allowed to develop the disagreeable clinical picture of severe hypothyroidism or myxedema. Some patients eventually regenerate thyroid tissue and need more radioiodine treatment. This is confirmed by follow-up I^{131} uptake studies and thyrograms that are made at three-month intervals.

RESULTS OF TREATMENT

Evaluation of Results.—The many and diverse clinical problems presented by patients with severe cardiac disease affect the evaluation of beneficial results obtained from radioiodine treatment. Complete symptomatic relief is not the prerequisite for an excellent or worthwhile result. A patient with angina pectoris decubitus who is relieved of the agonizing need to take glyceryl trinitrate (nitroglycerin) repeatedly throughout the day and night receives real help, even though after treatment walking without pain is still impossible. A patient who may be comfortable at rest but who cannot work because of repeated attacks of angina pectoris is greatly benefited if he is improved sufficiently to return to work. A patient with congestive failure and ascites gains much advantage if radioiodine treatment relieves the necessity of repeated paracenteses, so that sodium restriction or the use of mercurial diuretics is sufficient.

TABLE 1.—*Comparison and Summary of Results of Radioiodine Treatment of 231 Euthyroid Cardiac Patients in Two Series*

	1st Series, 100 Patients		2nd Series, 131 Patients		Series Combined, 231 Patients	
Results *	No.	%	No.	%	No.	%
Excellent	55	55	67	51	122	53
Died	23	42	5	7	28	23
Good	28	28	48	37	76	33
Died	7	25	10	21	17	22
No improvement	17	17	16	12	33	14
Died	15	83	6	38	21	64
Total	100	100	131	100	231	100
Died	45	45	21	16	66	29

* Classified according to Blumgart.[1]

Knowing what relief has been obtained from other forms of medical treatment, and with the clinical problems of each patient crystallized and recorded, we can more accurately evaluate the effect of radioiodine treatment. The improvement in comfort, ability to care for self or to work, reduction in required drugs, and decrease in dangerous attacks of acute pulmonary edema must be weighed against the disadvantages of relative hypothyroidism.

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[13] Andrews, G. A., and others: Pathologic Changes in Normal Human Thyroid Tissue Following Large Doses of I^{131}, Am. J. Med. 16: 372-381 (March) 1954.

Statistics.—The results of treatment in the total 231 cases treated to date have followed closely the pattern set when the first 100 cases were reported in 1952.[7] Of 231 cases, results were considered excellent in 53%, good in 33%, and there was no improvement in 14%. Comparison of results obtained in the first 100 cases with results in the second group of 131 cases is shown in table 1. The classification used to evaluate and compare results in both groups as presented here is that of Blumgart [1] in which excellent (marked improvement) is defined as markedly improved over pretreatment status, with either no recurrence of symptoms or a marked decrease in the frequency and severity of angina pectoris or congestive failure, despite activity greater than that possible before treatment and good or worthwhile result as definite decrease in frequency and severity of attacks on same activity as before treatment, or able to do considerably more with no increase in angina pectoris or congestive failure.

TABLE 2.—*Results of Radioiodine Treatment of Two Series of 231 Euthyroid Patients*

Results	With Severe Angina Pectoris						With Severe Congestive Heart Failure						With Severe Angina & Congestive Failure Combined					
	1st Series *		2nd Series †		Total		1st Series *		2nd Series †		Total		1st Series *		2nd Series †		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Excellent	19	59	34	55	53	56	18	58	23	49	41	53	18	49	10	46	28	48
Died	4	..	3	..	7	..	7	..	..	..	7	..	12	..	2	..	14	..
Good	11	34	24	39	35	37	6	19	16	34	22	28	11	29	8	36	19	32
Died	2	..	5	..	7	..	2	..	4	..	6	..	3	..	1	..	4	..
No improvement	2	7	4	6	6	7	7	23	8	17	15	19	8	22	4	18	12	20
Died	1	..	1	..	2	..	6	..	2	..	8	..	8	..	3	..	11	..
Total	32	100	62	100	94	100	31	100	47	100	78	100	37	100	22	100	59	100
Died	7	22	9	15	16	17	15	48	6	13	21	27	23	62	6	27	29	49

* 100 patients.
† 131 patients.

TABLE 3.—*Radioiodine Treatment of Euthyroid Severely Ill Cardiac Patients, Comparison of Results in the Literature*

Results	Angina Pectoris, %					Congestive Heart Failure, %			
	Jaffe [4]	*Blumgart* [1]	*Serber* [9]	*Wolferth* [2]	*Chapman* [8]	*Jaffe* [4]	*Blumgart* [1]	*Serber* [9]	*Chapman* [8]
Excellent	56	34	31	67	..	53	31	..	..
Good	37	38	23	22	..	28	15	18	..
Total improved	93	72	54	89	45	81	46	18	57
No improvement	6	27	46	11	55	19	54	82	43
Total cases	94	26	13	18	9	78	13	11	7

Excellent results were obtained in 55% of the first 100 cases and 51% of the second group of 131 cases. Results in 28% of the first group were judged good, whereas a greater number of additional good results, 37%, was obtained in the second group. Only 12% of the patients in the second group had no improvement, whereas 17% of the first group had been failures. Better selection of cases and more experience in the management of the treated patients may account for the improved results.

Patients with angina pectoris obtained a greater percentage of benefit than patients with congestive failure or angina and failure combined (table 2). The smaller percentage of patients with angina with no improvement confirms this. In both series, the proportion of excellent results was very nearly the same in patients with angina, congestive failure, and angina plus congestive failure. The patients with angina and congestive failure combined showed the lowest percentage of excellent results and the highest mortality. This might be expected, as those patients with manifestations of both types of cardiac dysfunction would be on the average the most seriously ill.

Of the first 100 patients treated and followed for four years, 45% have already died. The first patient of this group was treated 52 months ago, and the last patient was added to the group 36 months ago, giving a mortality of 45% over a period of 36 to 52 months. Among those 55 patients in the first group of 100 patients who had excellent results, 23 persons (42%) have died. Of those 28 patients who had good results, 7 persons (25%) have died, and of those 17 patients with poor results, 15 persons (88%) have died. Obviously, evaluation of the results obtained referred only to a certain circumscribed period of time. Although a high percentage of patients who had excellent results have died, a definite period of clinical improvement followed radioactive iodine treatment. The results could be considered good for the duration of the patients' lives. No evidence has been observed that radioiodine treatment has shortened the duration of life of these patients or influenced the development of atherosclerosis.

Although the work of the several groups investigating radioiodine as a treatment for euthyroid cardiac disease has been conducted independently, evaluations of the results obtained have been similar (table 3).

SUMMARY

Of 231 patients with euthyroid cardiac disease treated with radioiodine (I^{131}), 100 were followed as long as 52 months but not less than 36 months and 131 were followed as long as 36 months but not less than 6 months. Patients were treated for severe angina pectoris, congestive failure, or a combination of both, resulting from most of the common etiologies for heart disease. The "thyrogram" (a diagram of the thyroid gland made by a scintillation counter) was used to check gland size and function, and the time interval between courses of radioiodine could therefore be shortened. Patients with angina pectoris (94 in number) showed 56% excellent and 37% good results. Only 7% showed no improvement. Patients with congestive failure (78 in all) showed 53% excellent and 28% good results; 19% showed no improvement. A group of 59 patients with angina pectoris and congestive heart failure combined showed 48% excellent and 32% good results; 20% showed no improvement.

4833 Fountain Ave. (29) (Dr. Jaffe).

CLINICAL NOTES

EDEMA AND CONGESTIVE FAILURE RELATED TO ADMINISTRATION OF RAUWOLFIA SERPENTINA

George A. Perera, M.D., New York

Following the administration of alkaloids of Rauwolfia serpentina, the occasional occurrence of temporary sodium retention has been reported.[1] In the course of further experience with these drugs in the treatment of hypertension, fluid retention has now been encountered in five instances, even to the point of extensive edema, pulmonary congestion, and venous pressure elevation. The four women and one man who developed fluid retention all had documented hypertensive vascular disease with no previous history of dyspnea, edema, or cardiac pain. Four had negative urinalyses and one a 1+ proteinuria immediately prior to the episode. Three had been given 0.25 mg. of reserpine (Serpasil) twice daily by mouth, and two had been given Rauwolfia serpentina (Raudixin), 100 mg. twice daily by mouth, all five being on an ambulatory outpatient basis and on a self-selected diet but without extra salt.

In all instances moderate pitting edema of the ankles appeared within a week of the start of therapy. Two subjects went on to develop marked edema of the lower extremities and basal pulmonary rales, and one of these complained of moderate exertional dyspnea and exhibited some periorbital swelling. Both the patients with the more severe degrees of fluid retention, observed after three weeks of continued medication, had gained more than 4 lb. (1.8 kg.) in weight, with the venous pressure in an antecubital vein recorded as 116 and 130 mm. of saline respectively; both had a 1+ proteinuria; and a white blood cell count and differential smear was within normal limits in one. In only one patient of the group of five was there any significant reduction in blood pressure or pulse rate in association with drug administration. None complained of cardiac pain, and none exhibited any irregularities of cardiac rhythm.

No improvement was noted until therapy with the drug was discontinued, each patient having received from three to four weeks of sustained treatment without change in diet or dosage. Within one subsequent week all manifestations of abnormal fluid retention had vanished, one patient spontaneously remarking of her increased urine output. The weight of the two subjects with more marked edema returned to pretreatment levels by the end of the week, and in one of these it was possible to check the venous pressure, which had fallen to 80 mm. of saline. During a period of observation of from one to three months after treatment, no patient developed any recurrent edema or cardiac symptoms. At a later date, one of the patients who had developed marked edema while receiving reserpine was given the same drug in the same dosage for one week; definite pitting edema of the ankles was again apparent, and once more it vanished when administration of reserpine was discontinued.

COMMENT

The association of fluid retention in five patients treated with crude or purified alkaloids of Rauwolfia serpentina seems more than happenstance and, although no balance studies were undertaken, may possibly be related to the occasional sodium retention previously reported. It is difficult to attribute the accumulation of edema to changes in diet. Against the possibility of a coincidental cardiac decompensation in these hypertensive subjects are the negative previous histories, the temporal relationship to drug administration, the rapid remission following cessation of therapy, and the subsequent course. The minimal urinary findings do not suggest a nephrotic episode.

The observation that alkaloids of Rauwolfia serpentina may ocasionally produce fluid retention needs further confirmation, and the mechanism remains to be elucidated. In the meantime, this possibility should be kept in mind, particularly in patients who already have a lowered cardiac reserve.

SUMMARY

In five patients with hypertensive vascular disease, fluid retention occurred after the administration of crude or pure alkaloids of Rauwolfia serpentina. In two of these patients, the fluid retention was severe enough to cause congestive failure.

620 W. 168th St. (32).

From the Department of Medicine, Columbia University College of Physicians and Surgeons, and the Presbyterian Hospital.

This study was supported by grants from the Albert and Mary Lasker and the Albert H. and Jessie D. Wiggin foundations and the Irwin Strasburger Memorial Medical Foundation.

[1] Perera, G. A.: Rauwolfia Serpentina in Hypertensive Vascular Disease, Proc. Soc. Exper. Biol. & Med. 86: 453-456 (July) 1954.

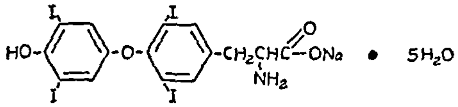
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

R. T. Stormont, M.D., *Secretary.*

Sodium Levothyroxine.—$C_{15}H_{10}I_4NNaO_4.5H_2O$. — M.W. 889.00. — 3,3′,5,5′-tetraiodothyronine pentahydrate.—The structural formula of sodium levothyroxine may be represented as follows:



Actions and Uses.—Sodium levothyroxine is the sodium salt of the levo isomer of thyroxine (DL-thyroxine). Levothyroxine exhibits approximately twice the activity of the racemic (DL-) form. Sodium levothyroxine, which is more soluble and reportedly more active than the base, levothyroxine, also is more efficiently absorbed by the gastrointestinal tract and is effective in smaller oral doses than mixtures of D-thyroxine and L-thyroxine (thyroxin, U. S. P. XIII; thyroxin fraction, N. N. R. 1947). Approximately 50% of the oral dose of sodium levothyroxine is absorbed. The mean half-time of levothyroxine turnover is reported to be 6.5 days as measured by disappearance of radio-iodine (I^{131}) labeled levothyroxine from the serum in euthyroid subjects. Daily oral administration is cumulative and is capable of producing typical manifestations of hyperthyroidism.

Sodium levothyroxine is useful in the replacement therapy of diminished or absent thyroid function (cretinism, myxedema, and milder forms of hypothyroidism) resulting from primary atrophy, partial or complete absence of the gland (congenitally or surgically acquired), or from the effects of excessive radiation or antithyroid drugs. It should not be employed in hypometabolic states of nonthyroid origin or in conditions not definitely associated with thyroid deficiency. Replacement therapy reverses the symptoms of athyreosis and hypothyroid states and must be maintained to control the disease.

As with other thyroid preparations, overdosage may produce hyperthyroidism, so that it is necessary to keep patients under close observation for the development of signs or symptoms of thyrotoxicosis. Although the chemical purity of sodium levothyroxine permits more uniform standardization than with desiccated thyroid (thyroid, U. S. P.), clinical activity must be determined in each individual case. For purposes of rough comparison, 0.1 mg. of sodium levothyroxine produces the equivalent ical effect of 30 to 60 mg. of thyroid, U. S. P.

Dosage.—Sodium levothyroxine is administered orally. The initial dosage for adults should range from 0.05 to 0.1 mg. daily. The response of the patient should serve as a basis for increments of 0.05 to 0.1 mg. in the daily dosage, and these increases should be made every 1 to 3 weeks until proper metabolic balance is obtained. The daily dosage required to achieve this may vary from 0.02 to 1 mg., but in most patients a maintenance dosage of 0.15 to 0.4 mg. daily is usually adequate. Adjustments in dosage should be gradual to avoid rapid changes. For children the initial dosage should not exceed 0.05 mg. daily. Increments in the daily amount of 0.025 to 0.05 mg. may be made every 1 to 3 weeks until the desired response is obtained.

The effects of overdosage may begin after 4 to 5 days, but they may not become apparent for 1 to 3 weeks. When signs of overdosage appear, medication should be stopped for 2 to 6 days and then resumed at a lower level.

Travenol Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of sodium levothyroxine.

Protoveratrine A and B Maleates.—The maleate salt of a mixture of two alkaloids, isolated by appropriate means, from Veratrum album. The chemical structure of the two alkaloids has not been established.

Actions and Uses.—Protoveratrine A and B maleates have the same actions and uses as the parent esters, protoveratrines A and B. (See New and Nonofficial Remedies 1955, under the monograph on protoveratrines A and B.) The same precautions should be observed in the use of the maleate as with the parent form of the mixture.

Dosage.—Protoveratrine A and B maleates are administered orally. On the basis of comparative molecular weights, approximately 13% more of the maleate salts than of the parent esters is required to provide equivalent dosage; however, the difference is not of particular significance except when therapy may be alternated in patients for whom optimal maintenance dosage has been individualized. Careful adjustment of the dosage for each patient is essential.

The average oral total daily dosage ranges from 1 to 2.5 mg., divided into three to five doses, preferably given after meals and at bedtime, at intervals of 4 to 6 hours. The initial oral dose is 0.5 mg. three times daily (after meals). Increases in dosage are made in accordance with blood pressure measurements at the time of peak action of the drug (1½ to 3 hours after the dose). It is recommended that the morning and evening doses be increased by increments of 0.125 mg. until the desired therapeutic effect or evidence of overdosage is observed. The noon dose is maintained at the 0.5 mg. level. A dosage schedule including between meal and bedtime doses may be more effective in some patients. With the appearance of nausea or vomiting, the preceding dose should be decreased by 0.125 mg.

Eli Lilly & Company cooperated by furnishing scientific data to aid in the evaluation of protoveratrine A and B maleates.

APPROVED EXAMINING BOARDS IN MEDICAL SPECIALTIES

ADVISORY BOARD FOR MEDICAL SPECIALTIES

B. R. Kirklin, Secretary-Treasurer
Rochester, Minn.

Because of the overwhelming amount of material, the following pages concerning the American specialty boards are continued in this issue from the annual Internship and Residency Number of The Journal, *Sept. 24.*—Ed.

The Advisory Board for Medical Specialties was organized in 1933-1934 to coordinate graduate medical education and certification of medical specialists in the United States and Canada. A few specialty boards had been functioning actively and successfully for a number of years prior to the organization of the Advisory Board for Medical Specialties. Their purposes were, primarily, to establish minimum standards of graduate education and training requirements for physicians representing themselves to the public as being specialists, with certification by the boards of candidates after they had been able successfully to pass the boards' examinations. Secondarily, these boards hoped to improve the general standards of graduate medical education and facilities for special training.

It was soon recognized that some formal and official plan of organization must be established. It was clearly essential that an examining board must have the official sanction of the national societies in its given specialty as well as that of its section of the American Medical Association, but there was, at that time, nothing to prevent unofficial groups from organizing examining boards and using the title American board. In order to avoid duplication of effort as well as to coordinate the work of the several boards and other interested groups into a concise and homogeneous plan for betterment, it was deemed advisable to create an advisory board to give consideration to those problems common to all and to represent all organizations concerned.

The Advisory Board is composed of two representatives from each of the approved examining boards in the medical specialties and such other national organizations as are interested in the education, examination, and certification of medical specialists. These representatives are duly elected to this body.

The number of organizations comprising the Advisory Board for Medical Specialties remains the same; namely, 18 specialty boards and 4 other organizations interested in graduate medical education. The total voting membership is still 44. The organizations and their representatives are as follows:

CURRENT MEMBERSHIP IN THE ADVISORY BOARD FOR MEDICAL SPECIALTIES—1955-1956

The Association of American Medical Colleges
John B. Youmans
Stanley E. Dorst *

The American Hospital Association
Albert W. Snoke
Robin C. Buerki *

The Federation of State Medical Boards of the U. S. A.
Creighton Barker
Walter L. Bierring *

The National Board of Medical Examiners
Robert A. Moore
John P. Hubbard †

The American Board of Ophthalmology
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John B. Flick *

The American Board of Anesthesiology
R. J. Whitacre
Curtiss B. Hickcox *

The American Board of Plastic Surgery
Frederick A. Figi
Frank McDowell

The American Board of Neurological Surgery
Francis C. Grant
Leonard T. Furlow *

The American Board of Physical Medicine and Rehabilitation
Robert L. Bennett
Earl C. Elkins *

The American Board of Preventive Medicine
William P. Shepard
Ernest L. Stebbins *

The American Board of Proctology
Louis A. Buie
Stuart T. Ross *

Officers and Committees—1955

Robert A. Moore, National Board of Medical Examiners, President

Walter L. Palmer, American Board of Internal Medicine, Vice-President

B. R. Kirklin, American Board of Radiology, Secretary-Treasurer

MEMBERS OF THE EXECUTIVE COMMITTEE

Term to expire in 1956: Robert L. Faulkner, American Board of Obstetrics and Gynecology

Term to expire in 1957: Walter G. Maddock, American Board of Surgery

COMMITTEE ON STANDARDS AND EXAMINATIONS

Harold A. Sofield, American Board of Orthopædic Surgery, Chairman

Shields Warren, American Board of Pathology

Francis Gerty, American Board of Psychiatry and Neurology

COMMITTEE ON AUDIT AND FINANCE

William B. Wartman, Chairman, American Board of Pathology
Walter G. Maddock, American Board of Surgery

REPRESENTATIVES ON THE ADVISORY COUNCIL ON MEDICAL EDUCATION

Ernest L. Stebbins, American Board of Preventive Medicine
Frederick A. Figi, American Board of Plastic Surgery

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* Corresponding member.
† Executive secretary of board.

Examining and certifying boards in 19 specialties have been approved by the Council on Medical Education and Hospitals of the American Medical Association and the Advisory Board for Medical Specialties on the basis of minimal standards governing accreditation of specialty boards as formulated by the Council.

The primary purposes of the boards are (1) to conduct investigations and examinations to determine the competence of voluntary candidates for certificates issued by the respective boards, (2) to grant and issue certificates of qualification to candidates successful in demonstrating their proficiency, (3) to stimulate the development of adequate training facilities, (4) to aid in evaluating residencies and fellowships under consideration by the Council on Medical Education and Hospitals of the American Medical Association, and (5) to advise physicians desiring certification as to the course of study and training to be pursued.

The boards are in no sense educational institutions, and the certificate of a board is not to be considered a degree. It does not confer on any person legal qualifications, privileges, or a license to practice medicine or a specialty. The boards do not purport in any way to interfere with or limit the professional activities of any licensed physician, nor do they desire to interfere with any practitioners of medicine in any of their regular or legitimate duties.

Two boards certify candidates in subspecialties. The American Board of Internal Medicine certifies in allergy, cardiovascular disease, gastroenterology, and pulmonary diseases. The American Board of Pediatrics certifies in allergy. Certification in the primary field is a requirement for certification in the subspecialties. The Board of Thoracic Surgery, which is organized as an affiliate board of the American Board of Surgery, requires certification in surgery as a prerequisite to certification in thoracic surgery.

Certificates in special divisions of their specialty are conferred by six boards. The American Board of Obstetrics and Gynecology will issue certificates in obstetrics or gynecology only. The American Board of Otolaryngology grants a limited certificate in endoscopy. The American Board of Pathology issues certificates in pathological anatomy, clinical pathology, a combination of these two fields, pathological anatomy and clinical microbiology, clinical microbiology and clinical chemistry, clinical bacteriology, neuropathology, and clinical microbiology. The American Board of Preventive Medicine issues certificates in public health, aviation medicine, and occupational medicine. The American Board of Psychiatry and Neurology issues separate certificates in psychiatry and in neurology, or a combined certificate for those qualified in both fields. This board also issues supplementary certificates in psychiatry and in neurology. The American Board of Radiology issues certificates in radiology, roentgenology, therapeutic radiology, diagnostic roentgenology, radiological physics, x-ray and gamma-ray physics, and medical nuclear physics.

Each of the boards has published a booklet containing a list of its officers and a brief statement of its organization, purposes, and the qualifications that determine eligibility for certification. A summary of the current data pertaining to each board and the names of its officers are reproduced in the following pages.

There is included in this section a specific statement from each of the boards regarding allowances of credit for service in the armed forces during the present emergency.

Table 1 contains a list of the approved specialty boards, the year of their activation, the number of certificates issued prior to July 1, 1954, and the total number of candidates certified to June 30, 1955. Figures are also given in these two categories showing the numbers certified in the subspecialties and finally the available figures pertaining to special certification by the boards in obstetrics and gynecology, otolaryngology, pathology, preventive medicine, psychiatry and neurology, and radiology.

On July 1, 1954, there were 56,801 physicians certified by the 19 boards. During the year July 1, 1954, to June 30, 1955, a total of 3,843 certificates were issued. Up to this latter date 60,644 physicians have been certified.

On July 1, 1954, a total of 1,362 certificates in subspecialties had been awarded. An additional 35 were awarded in the ensuing year, bringing the total number of certificates issued in the subspecialties to 1,397 on June 30, 1955. Prior to July 1, 1954, the six boards mentioned had issued 12,017 special certificates. During the year ending June 30, 1955, 858 special certificates were issued, bringing the total number awarded to that date to 12,875.

The number of specialists certified each year during the past 15 years by all boards and the cumulative totals are recorded in table 2. Up to June 30, 1955, a total of 60,644 certificates was issued. This does not represent the number of living specialists, but the total number of certificates issued.

The seventh edition of the "Directory of Medical Specialists," compiled by the Advisory Board for Medical Specialties and published in 1955 by the A. N. Marquis Company, Chicago, contains biographic information on the educational background of each living specialist, including those retired from practice, certified by an American board.

CREDIT FOR MILITARY SERVICE

At the suggestion of the Joint Committee on Medical Education in Time of National Emergency, the Advisory Board for Medical Specialties conducted a survey to determine the amount of credit for service in the armed forces during the present emergency that would be given toward specialty board certification. The inquiry addressed to the boards contained the following questions:

> Will your specialty board give preference to those candidates wishing to be examined before going overseas or entering military service?
>
> How much, if any, credit toward your training and/or experience requirements will your board allow candidates while in military service?

In reply to the first question all boards answered in the affirmative. The specialty boards have not lowered their requirements because of the military emergency, but all boards except one have indicated they will grant some credit for military service. The specialty boards have indicated such allowances as follows:

TABLE 1.—*Approved Examining Boards in Medical Specialties*

Name of Board	Year of Activation	Total Certificates Awarded to July 1, 1954	Total Certificates Awarded to June 30, 1955
American Board of Anesthesiology	1937	1,185	1,324
American Board of Dermatology and Syphilology	1932	1,603	1,672
American Board of Internal Medicine	1936	9,062	9,727
American Board of Neurological Surgery	1940	553	614
American Board of Obstetrics and Gynecology	1930	4,311	4,629
American Board of Ophthalmology	1917	4,051	4,266
American Board of Orthopaedic Surgery	1934	2,392	2,550
American Board of Otolaryngology	1924	5,073	5,119
American Board of Pathology	1936	2,727	2,947
American Board of Pediatrics	1933	4,966	5,349
American Board of Physical Medicine and Rehabilitation	1947	240	279
American Board of Plastic Surgery	1937	313	337
American Board of Preventive Medicine	1948	1,335	1,421
American Board of Proctology	1949	215	231
American Board of Psychiatry and Neurology	1934	4,931	5,198
American Board of Radiology	1934	4,641	4,931
American Board of Surgery	1937	6,817	7,446
Board of Thoracic Surgery (Affiliate of the American Board of Surgery)	1949	465*	551*
American Board of Urology	1935	1,921	2,053
Totals	....	56,801	60,644
Certification in Subspecialties			
American Board of Internal Medicine			
Allergy		144	151
Cardiovascular Disease		522	522
Gastroenterology		328	343
Pulmonary Diseases		222	233
Totals		1,216	1,249
American Board of Pediatrics			
Allergy		65	67
American Board of Surgery			
Proctology		81†	81†
Totals		1,362	1,397
Special Certification			
American Board of Obstetrics and Gynecology			
Obstetrics		17	20
Gynecology		10	10
American Board of Otolaryngology			
Endoscopy		...	...
American Board of Pathology			
Pathological Anatomy		665	813
Clinical Pathology		262	286
Pathological Anatomy and Clinical Pathology		133	171
Pathological Anatomy and Clinical Microbiology		1	1
Clinical Microbiology and Clinical Chemistry		3	3
Clinical Bacteriology		2	2
Neuropathology		7	9
Clinical Microbiology		2	9
Hematology		...	1
Totals		1,075	1,295
American Board of Preventive Medicine			
Public Health		1,167	1,169
Aviation Medicine		168	252
Occupational Medicine		...	...
Totals		1,335	1,421
American Board of Psychiatry and Neurology			
Psychiatry		3,660	3,903
Neurology		316	332
Psychiatry and Neurology		955	963
Totals		4,931	5,198
American Board of Radiology			
Radiology		3,017	3,240
Roentgenology		915	947
Diagnostic Roentgenology		495	515
Therapeutic Radiology		152	153
Therapeutic Roentgenology		5	5
Radium Therapy		7	7
Radiological Physics		38	41
X-Ray and Radium Physics		17	17
Medical Nuclear Physics		3	6
Totals		4,649	4,931
Totals		12,017	12,875

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* Included in totals for American Board of Surgery.
† Independent board established in 1949.

Anesthesiology.—No formal training credit is granted for military service unless the physician is assigned to a service hospital with an approved residency training program. Practice time will, however, be granted for military service if the physician is assigned to the anesthesia service.

Dermatology and Syphilology.—Students in training who have served as physicians in the Army, Navy, or U. S. Public Health Service may submit a supplementary application, obtainable from the executive secretary, for possible credit toward experience. This application is not obligatory, but if submitted it must be done prior to or at the time of filing application for examination. It will not be considered until the preliminary registration has been filed. Since the application must be circulated through a committee whose members may be widely separated, several months are often required for a decision. Full-time dermatological military service may be credited in some part toward training, at the discretion of the board, provided it was under the direct supervision of a recognized specialist and provided a significant portion of approved training was completed before the service concerned. The board strongly urges that the candidate supplement his military service by further approved dermatological training before examination. Medical service in the armed forces not credited as training may be credited in part toward the two years of additional dermatological experience required for certification, the amount of credit depending on the circumstances.

TABLE 2.—*Annual Specialty Board Certification, 1940-1955*

Year (Ended March)	Number of Boards in Existence	Number Certified	Cumulated Totals
1940	14	....	15,853
1941	15	2,085	17,938
1942	15	1,756	19,691
1943	15	2,172	21,866
1944	15	1,578	23,444
1945	15	1,308	24,752
1946	15	1,320	26,072
1947	15	2,424	28,496
1948	16	3,002	31,498
1949 (June 30)	19*	4,479	35,977
1950 (June 30)	19	3,827	39,804
1951 (June 30)	19	4,552	44,346
1952 (June 30)	19	4,118	48,464
1953 (June 30)	19	4,022	52,486
1954 (June 30)	19	4,133	56,619
1955 (June 30)	19	3,843	60,644

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* One board, the American Board of Proctology, did not certify any candidates during this period.

Internal Medicine.—Active duty as a commissioned officer in the armed forces of the United States from June 1, 1950, to July 1, 1954, may be applied as one year of residency credit or one year of practice credit regardless of assignment. Service beyond one year during this interval may only be applied as practice credit on certification by former chiefs of service that assignments of candidates were in the field of internal medicine on a full-time basis in the care of clinical patients, largely on their own responsibility. Active duty in the armed forces as a commissioned officer after July 1, 1954, may not be applied as residency credit unless the candidate has served officially as a resident in a hospital approved for residency training by the Council on Medical Education in internal medicine or in the medical subspecialties recognized by this board. Active duty in the armed forces as a commissioned officer after July 1, 1954, may be applied as practice credit for one year or more on certification by present or former chiefs of service that assignments were in the field of internal medicine on a full-time basis, in the care of clinical patients largely on one's own responsibility. The requirements governing residency credit and practice credit for active duty in the armed forces from Dec. 8, 1941, to Jan. 1, 1947, will remain the same as those governing credit from June 1, 1950, to July 1, 1954, as outlined above.

Neurological Surgery.—The board makes no specific statement regarding military service. This matter is taken up individually with each applicant.

Obstetrics and Gynecology.—Credit will be given for time spent in an obstetric-gynecologic service in an Army or a Navy hospital under supervision on the same basis as a preceptorship, if these departments are supervised by diplomates of the board or recognized obstetricians-gynecologists. Full residency credit may be obtained if such hospital is approved for residency training. The board will review and give consideration to each individual case. Special request must be made for such credits.

Ophthalmology.—No stated credit. Each case is decided according to the time the candidate has spent assigned to a military hospital in ophthalmology and on other factors.

Orthopedic Surgery.—Up to one year of residency credit is given. Each case is determined on its own merits.

Otolaryngology.—Credit is given, but each case is determined on its own merits.

Pathology.—Allows liberal credit toward training when assigned to department of pathology, but candidates must first have had a minimum of one year residency in an approved civilian department of pathology.

Pediatrics.—One year of credit, regardless of assignment, toward two year practice requirement.

Physical Medicine and Rehabilitation.—Credit is given, but each case is determined on its own merits.

Plastic Surgery.—Credit is given on individual basis, considered on candidate's merits.

Preventive Medicine.—Credit for training and experience in public health or aviation medicine while in military service will be considered on an individual basis, depending on the type of service.

Proctology.—At present no credit is granted for military service.

Psychiatry and Neurology.—For military duty after Jan. 1, 1954, only experience credit will be granted for full-time psychiatric and/or neurological duties. Training credit will be granted for residency assignments in regularly approved training programs.

Radiology.—Maximum of one year's credit if assigned to full-time radiological duties.

Surgery.—If a candidate has served in a government hospital or hospitals fully approved for residency training, such training will be acceptable to the board. Military credit may be extended to those candidates who have served in nonapproved hospitals provided that the candidate has had a satisfactory surgical assignment with adequate and diversified clinical material and provided further that his work in surgery is carried out under the supervision of a surgeon acceptable to the board. Any credit extended in the latter category will be considered preceptorship credit and not residency credit.

Thoracic Surgery.—Credit for military service will be decided on an individual basis.

Urology.—No credit for training but credit for one year of practice requirement if training was complete when entering service.

Medical Officer's Professional Training Record.—The Surgeons General of the armed services have distributed a booklet prepared with the assistance of the Council and the Advisory Board for Medical Specialties that is designed to help prospective candidates for certification to maintain an accurate account of work done in the military service. This record will constitute part of the credentials to be submitted to the board on application for certification. The booklet has been printed by the Office of the Secretary of Defense and is distributed by the offices of the Surgeons General to the personnel of their departments. It is highly important that prospective applicants obtain a copy of the "Medical Officer's Professional Training Record" and that they submit their credentials for evaluation by the respective specialty board.

AMERICAN BOARD OF ANESTHESIOLOGY

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CERTIFICATION

1. *Method of Making Application.*—Application for certification may be made after a physician has completed one year of approved training. Application must be made to the secretary on a form prescribed by the board, procured only on written request of the applicant, and must be filed at least six months *prior to the date of examination.*

The secretary cannot make any eligibility rulings. These are made only by the entire board on recommendation of the appropriate committees after reviewing the candidate's formal application.

2. *Requirements*

A. After March 27, 1955, each applicant before he shall become eligible for certification in anesthesiology, must:

1. Have graduated from an approved medical school in the United States or Canada or have successfully completed the examinations of the National Board of Medical Examiners.

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* Deceased

Applicants must have completed an internship of not less than one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association, or its equivalent. Graduates of class B medical schools are not eligible to take the board examinations.

2. Establish in a manner satisfactory to the board that: (*a*) he is a physician duly licensed by law to practice medicine, (*b*) he is of high ethical and professional standing, and (*c*) he has received adequate special training in anesthesiology.

3. Submit proof to the board that he has limited his practice to anesthesiology as a specialty for five calendar years of which at least two have been in formal clinical training approved by the board and that he intends to continue to limit his practice to anesthesiology.

4. Prove to the satisfaction of the board by such written, survey, oral, and practical examinations as the board may prescribe that he is qualified to practice anesthesiology.

5. Personally prepare such case history abstracts of personally conducted procedures pertaining to anesthesiology as the board may specify.

B. Each applicant shall be classified for the purpose of examination and shall be examined in such a manner and under such rules as the board may prescribe. The board, acting as a committee of the whole, reserves the right to reject an applicant for any reason deemed advisable and without stating the same, and the action of the board shall be final.

3. *Examinations*

A. Written Examination: Eligible applicants may take this examination on completion of two years of clinical training approved by the board. Written examinations are conducted every year in about 16 locations throughout the United States on the third Friday in July. Written examinations are of the multiple choice type covering the following subjects: anatomy, chemistry, physics, pharmacology, pathology, and physiology. A passing grade, as determined by the board, is required.

B. Survey Examination: Started in 1949, this examination is conducted by one or more diplomates of the board who visit the applicant in his own locality to observe him in the practice of anesthesiology. The examiner may interview other persons in the community to determine whether the candidate is of high ethical and professional standing. This examination is conducted upon completion of four years limited to anesthesiology (including two years of approved clinical training), and successful completion of the written examination. The board may require more than one survey examination.

C. Oral Examination: Upon completion of the survey examination and five years' limitation of practice to anesthesiology the candidate's qualifications are reviewed and he may be declared eligible to appear for the oral examination. However, at least six months must elapse between the written and oral examination. Examinations are conducted semiannually, in April and October. Examiners consist of directors of the board, plus diplomates who assist as associate examiners. Oral examinations cover all phases of anesthesiology, including the basic sciences and clinical applications.

D. Practical Examination: At the discretion of the board practical demonstrations may be required of the management of the candidate's clinical practice in his local surroundings. This may include inspection of clinical records, reports of departmental activities, library facilities, available apparatus and demonstrations of application of anesthetic agents, methods and all techniques included in anesthesiology. The candidate will also be appraised as to whether he is of high ethical and moral standing in his community.

Applicants are entitled to three consecutive opportunities at yearly intervals to satisfactorily complete the written examination. This three year period begins on the date an applicant is first declared eligible for the written examination.

Oral examinations are given at six month intervals. An applicant is entitled to one oral examination each year for a three year period. In the event that a candidate fails an oral examination, at least 12 months must elapse before he may reappear for the oral examination. The three year period begins on the date an applicant is first declared eligible for the oral examination.

Failure to take an examination constitutes an opportunity just as much as failure to pass an examination. However, under extenuating circumstances such as illness or military service, a candidate may obtain extension of the three year period by writing to the secretary's office prior to the expiration of the three year period.

A fee of $25 will be charged for each repeat in the written and oral examination. The board may, however, at its discretion deny a candidate the privilege of reexamination.

The board reserves the right to limit the number of candidates to be admitted to any examination.

REAPPLICATIONS

Applicants whose original applications were declared void through failure to take the written or oral examination within the three year period will be required to file a new application under the current rules and regulations, pay a new application fee, and submit to both written and oral examination. Applicants whose original applications were declared void through failure to pass the written or oral examination within the three year period, having taken one or more written or oral examinations, must submit proof of an additional year of approved training before their reapplications will be considered. This reapplication will be considered under the current rules and regulations, and the applicant must pay a new application fee and submit to both written and oral examination.

FEE

The fee shall be $125. At least $50 shall be paid on filing the application, of which sum $35 shall be returned if the candidate is not accepted for examination. The remainder ($75) shall be paid before taking the examination.

The board is a nonprofit organization. The fees for examination and certification have been computed on a basis of cost of maintaining an administrative office and conducting examinations. The board reserves the right to increase the fee when necessary.

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PURPOSES

The board was formed primarily to establish standards of competence for physicians who seek recognition as specialists in dermatology and syphilology. It sets minimum requirements of education and graduate training and takes a keen interest in the development of facilities to provide this training. To this end, the board appraises institutions and persons wishing to train specialists in the field and lends its approval to those offering adequate programs. It examines and certifies qualified applicants who voluntarily comply with its requirements and supplies lists of those certified to the American Medical Association, the Directory of Medical Specialists, and other appropriate organizations and publications. The board assumes the responsibility of setting the standards to be met, but upon the candidate rests the responsibility of acquiring the knowledge to fulfill these standards.

GENERAL REQUIREMENTS FOR ELIGIBILITY FOR EXAMINATION

1. High ethical and professional standing.

2. Graduation from a medical school approved, at the time of the candidate's graduation, by the Council on Medical Education and Hospitals of the American Medical Association. Graduates of schools not on the approved list may be eligible provided they pass part 1 and part 2 of the examinations of the National Board of Medical Examiners.

3. Satisfactory completion of an internship of not less than one year in a hospital approved by the same Council. During three years of World War II internships of nine months only were the rule and fulfilled this requirement. However, all internships completed on July 1, 1947, or thereafter must be of at least 12 months' duration.

4. A state license to practice medicine issued after examination, or by endorsement of the certificate of the National Board of Medical Examiners.

5. Citizenship in the United States or citizenship by birth in Canada or Cuba.

SPECIAL REQUIREMENTS

The following minimum requirements have been established for admission to examination:

Formal training in dermatology and related subjects of not less than three years. This training may be obtained as a resident, fellow, or graduate student in the institutions recognized by the Council on Medical Education and Hospitals of the American Medical Association and approved by the American Board of Dermatology and Syphilology. One month in each year may be taken as a vacation. Vacations may not be postponed from one year to another. Candidates will be eligible for the written examination when three full years have elapsed since the beginning of training.

The formal training shall include:

At least one year full-time in an institution approved for three year training.

Graduate training in the basic medical sciences. (They are listed in the syllabus.)

Carefully supervised clinical and laboratory work.

Annual examinations or other appraisal in the clinical and laboratory aspects of dermatology and subjects related to it.

METHODS OF TRAINING

The preferred method of training is a three year course in an institution approved for that period. However, apart from the required full-time year in such an institution, the remaining two years may be taken in institutions of lesser approval; or in part or in whole as a preceptorship (q.v.); or in half-time institutional training, the remainder being spent in practice. In the last-mentioned plan, only the institutional work is credited as training. Training must be completed within a span of five years, except where military service or other compelling circumstances shall intervene.

CREDIT FOR MILITARY SERVICE

Students in training who have served as physicians in the Army, Navy, or U. S. Public Health Service may submit a supplementary application, obtainable from the executive secretary, for possible credit towards experience. This application is not obligatory, but if submitted it must be done prior to or at the time of filing application for examination. It will not be considered until the preliminary registration has been filed. Since the application must be circulated through a committee whose members may be widely separated, several months are often required for a decision.

Full-time dermatological military service may be credited in some part toward training, at the discretion of the board, provided it was under the direct supervision of a recognized specialist, and provided a significant portion of approved training was completed before the service concerned.

The board strongly urges that the candidate supplement his military service by further approved dermatological training before examination. Medical service in the armed forces not credited as training may be credited in part toward the two years of additional dermatological experience required for certification, the amount of credit depending on the circumstances.

PRECEPTORSHIP TRAINING

Candidates may take up to two years of their training under the direction of a preceptor approved by the board. Not more than half of each training day may be spent in the office of the preceptor; during the other half day supervised training must be undertaken in an approved institution. The preceptor and the chief of service of the institution are jointly responsible for this training, which must conform to a schedule that the preceptor has filed with the board. Preceptorships may be taken during any two of the years of training. A list of approved preceptors is available.

RESPONSIBILITY

It is the candidate's responsibility to make early contact with the board, to ascertain and observe its regulations, and to file the preliminary registration and the application for certification forms. Candidates should have met the General Requirements (q.v.) before applying for certification. Directors of training are responsible for submitting annual reports on their trainees. Directors should assist the board by having trainees meet the General Requirements.

PRELIMINARY REGISTRATION

Every candidate must file a preliminary registration with the board prior to or at the beginning of training, whether or not plans are complete at the time. This establishes his identity and status as a candidate, and begins his permanent file. It enables the board to detect any deficiencies in meeting the General Requirements or in the contemplated plan of training. The preliminary registration form is obtainable from the office of the board. No fee is involved at this time.

Each candidate should also request a copy of the *Booklet of Information* and the *Syllabus of Graduate Training*.

ESTIMATES OF STATUS

Many candidates write outlining their background to date and asking for an estimate of the further training needed. The board's requirements are published to provide this information. Decisions as to additional training required can be made only by the committee on requirements upon submission of the application for certification form giving details of the training undertaken. A $25 registration fee is to accompany this application. The board acts as a body and through duly constituted committees. Individual members only carry out the rules and regulations of the board.

APPLICATION FOR EXAMINATION

Application for examination may be filed before the end of the formal training period, and must be made before the closing date regularly published in the Examinations and Licensure column of THE JOURNAL of the American Medical Association. Dates of examinations, which may vary, are also published here. Applications should be filed early in order to obtain full advantage of the loan sets of histopathology slides available from the Armed Forces Institute of Pathology. No application will be considered without the accompanying registration fee of $25, which will not be refunded. When all supporting documents have been received the application is submitted to the committee on requirements, which appraises the qualifications of the candidate and decides as to his eligibility for examination. An examination fee of $75 is payable when the candidate is notified that his application is acceptable by the board.

The total fee of $100 has been carefully computed and is used entirely for administrative purposes. Members of the board receive no compensation except for actual expenses connected with the examinations.

EXAMINATIONS

Examinations are designed to ascertain the breadth of the candidate's knowledge in the basic as well as the clinical aspects of dermatology and to test his familiarity with the literature and to gauge his general qualifications as a specialist in this branch of medicine.

All applicants for certification must now pass a comprehensive written examination before they are eligible for the oral test. The written examination is held simultaneously in 20 major cities. Applicants are then required to pass the oral clinical and laboratory examination which is conducted in a clinic. Cases will be seen and discussed with each candidate, and the examiners will seek to ascertain his knowledge of general dermatology as well as of various related subjects.

Candidates whose applications have been accepted may take the next examination after the completion of training. Except in special circumstances, an applicant shall take the examination within a year following the filing of application. A candidate once accepted for an examination will henceforth remain eligible for only two succeeding examinations, unless some compelling circumstance, such as military service, shall intervene.

Candidates who have signified their intention of taking the examination and who fail to appear, or who cancel their request after the final notice has gone out, shall forfeit the examination fee.

The board's records are confidential throughout. Examination marks will not be divulged to anyone. The findings of the board are subject to its discretion and are final. Applications are accepted on this understanding.

REEXAMINATIONS

A candidate who fails or is conditioned will be eligible for a second examination without further formal application, but must give at least 60 days' notice of his wish. As the cost of examination is approximately the same whether in whole or in part, a reexamination fee of $50 will be charged.

If the candidate fails to complete successfully all or part of the examination on two occasions, he must take at least six months' additional full-time training, or a year's half-time training, in an institution approved for three years, before being eligible for further examination. He must then file a new application and pay another examination fee of $75.

A candidate who fails his third examination will be eligible for a fourth examination without formal application. Notice of his intent is to be given 60 days before the examination. A reexamination fee of $50 is required.

If a candidate who has failed or has been conditioned does not appear for reexamination before the expiration of three years, he must make a new application and pay an additional fee of $75 before he can be reexamined.

CERTIFICATES

A certificate granted by this board does not of itself confer any degree or legal qualifications, privileges, or license to practice dermatology or syphilology. The board does not limit or interfere with the professional activity of any duly licensed physician. The granting of its certificate indicates that the holder has had adequate training in dermatology and has voluntarily fulfilled the requirements of the board.

A certificate is issued when the successful candidate has completed at least five years of dermatological training and experience.

Certificates are issued only to physicians who practice in the United States and its possessions, in Canada, or in Cuba.

A diplomate is to confine his practice to dermatology except for such emergency programs as have been approved in principle by the American Medical Association.

The names of diplomates are sent to the Directory of Medical Specialists, and to other appropriate organizations and publications.

Membership in the local and state medical societies as well as the American Medical Association is strongly recommended.

REVOCATION OF CERTIFICATES

The certificates issued by the board are issued subject to the provisions of its certificate of incorporation and of its bylaws, and each certificate is subject to revocation in the event that: (*a*) the issuance of such certificate or its receipt by the physician so certified shall have been contrary to any of the provisions of the certificate of incorporation or bylaws; or (*b*) the physician so certified shall not have been eligible to receive such certificate, irrespective of whether or not the facts constituting him so ineligible were known to or could have been ascertained by the directors of the board at the time of the issuance of such certificates; or (*c*) the physician so certified shall have made any misstatement of fact in his application for such certificate or in any other statement or representation to the board or its representatives; or (*d*) the physician so certified shall have been convicted by a court of competent jurisdiction of a felony or of any misdemeanor involving, in the opinion of the board of directors, moral turpitude in connection with his practice of medicine; or (*e*) the physician so certified shall have had his license to practice medicine revoked or shall have been disciplined or censured as a physician by any court or other body having proper jurisdiction and authority.

CHANGE IN INSTITUTIONAL STATUS

When the term of approval of an institution changes, a candidate is given credit by the board for the training year already in progress, on the prior basis. Further work will be credited according to the new status.

PRECEPTORS

A preceptor is one who takes a candidate into his office for part-time training. A dermatologist who wishes this responsible designation must be: (1) a diplomate of the board of at least five years' standing; (2) a recognized teacher of professorial rank on the dermatological staff of an institution approved for three years of training by the board; and (3) recommended as suitable by the chief of staff of that institution. He must be willing to submit regular reports on the student's training on forms supplied by the board.

ADVERTISING

It is not considered good form for a diplomate to advertise to the lay public the board's recognition of his training and ability. He should not use commercial methods and avenues. It is proper to include a statement or phrase such as "Diplomate of the American Board of Dermatology and Syphilology" in announcement cards when opening an office, or after the author's name in a medical publication when the association with a hospital, medical school, or medical society is also mentioned. If the diplomate is in doubt, it would be well to consult the board before placing his good name in jeopardy.

PUBLICATIONS OF THE BOARD

1. Booklet of Information. Every candidate should request a copy, as he will be held responsible for knowing its contents.
2. Syllabus of Graduate Training. This is designed (*a*) to inform the candidate of the field to be covered in his preparation; (*b*) to aid medical schools and hospitals by outlining the scope of teaching deemed advisable.
3. Booklet of Questions from the written examinations. $1.00.

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RESPONSIBILITIES OF THE BOARD

The major object of the board is to pass judgment on the competence of internists who desire certification—not to determine who shall or shall not practice internal medicine as a specialty.

The American Board of Internal Medicine is not concerned with any mechanism that gains special privileges or specific recognition for those physicians who have been certified in internal medicine. It has never been the intent of the board to define requirements for membership on the staffs of hospitals.

The board endorses completely the stand of the American Board of Surgery, which "specifically disclaims interest in or recognition of differential emoluments that may be based on certification."

REQUIREMENTS FOR ADMISSION TO EXAMINATION AND CERTIFICATION

Each applicant for certification by this board must satisfy the qualifications listed below: General Qualifications 1 and 2 and Professional Qualifications, paragraphs 1-10. For exceptions to the requirements 3 and 4 under Professional Qualifications see paragraph 7.

GENERAL QUALIFICATIONS

1. All candidates must be citizens of the United or Canada.

2. All candidates must present evidence of satisfactory moral and ethical standing in the medical profession.

PROFESSIONAL QUALIFICATIONS

1. Graduation from a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association at the date of graduation.

2. Satisfactory completion of an approved internship of not less than 12 months.[1]

3. Residency or fellowship approved by the Council on Medical Education and Hospitals of the American Medical Association in internal medicine according to the following plan (Plan A) or one of the alternate plans described under paragraph 4.

Plan A: A residency or fellowship in internal medicine for a period of not less than three years in a hospital or other institution approved by the Council on Medical Education and Hospitals of the American Medical Association for residency or fellowship in internal medicine. In such instance in which a resident's nominal status differs from that of the other hospital residents, he must furnish the board with certification by the chief of the medical service and the medical director of the hospital that he actually performed the full duties of a resident as a bona fide member of the residency program. In addition, two years of adequate clinical experience in the practice of internal medicine following graduate training will be required. The board will accept the following equivalents as satisfying one year only of the three years of residency or fellowship to which this paragraph refers. (Two years must be in the field of general internal medicine.)

(*a*) If 12 months of a two year approved internship in a hospital approved for residency training in internal medicine is limited to the medical service and medical specialties, credit will be granted for a first year of assistant residency. The remaining two years of residency training must be in the general field of internal medicine. Certification by the chief of the medical service as to compliance with this requirement must accompany application.

(*b*) One year of approved residency in one of the medical specialties: allergy, cardiovascular disease, gastroenterology, hematology, pulmonary diseases, neurology, pediatrics, psychiatry, dermatology and syphilology.

(*c*) One year of approved residency in pathology.

(*d*) One year as a graduate student or as an instructor in an approved medical school on a full-time basis in bacteriology, biochemistry, pathology, pharmacology, physiology, or internal medicine.

(*e*) An advanced degree in the medical sciences, provided the work has been done and degree obtained after graduation from medical school.

NOTE.—Graduate training credit for the time involved will be allowed candidates who take and satisfactorily complete postgraduate courses in internal medicine or the basic medical sciences provided by accredited medical schools on a full-time basis. This ruling shall not apply to courses of less than three months' or more than 12 months' duration. A certificate of creditable performance, based in part, at least, on a formal examination on completion of the course, will be required.

NOTE.—Fellowship or research assignments not approved by the Council on Medical Education and Hospitals will require certification by the chief of service that such assignment was equivalent in graduate training opportunities and patient responsibilities to that of an approved residency in internal medicine or the subspecialties recognized by the board. This certification must be presented before application is filed.

4. Alternate Training Plans: The board firmly believes that the plan of intensive training prescribed above offers the best opportunity for a young physician to prepare himself to meet his responsibilities as a specialist in internal medicine. It is recognized, however, that capable persons may accomplish the same result in a longer period of time during which the training is less intensive. The board realizes that a number of medical graduates cannot follow the shorter and more desirable plan either because suitable residencies are not available or, in some instances, because of personal and economic reasons. Accordingly, the board has modified its previous regulations governing eligibility for admission to examination. In doing so the board has not modified its standards of examination. It has liberalized its eligibility requirements for admission to examination by accepting half-time formal training and the practice of internal medicine under favorable circumstances as to professional hospital contacts, in lieu of part of the full-time requirements. It is hoped that by this means exceptional individuals may acquire a knowledge of medicine and experience in its application sufficient to qualify for examination.

The program previously described (Plan A), which consists of three years of formal training in an approved residency or its equivalent, following internship, and followed by two additional years in the practice of internal medicine, is recommended by the board. Variations in this program are now subject to the following regulations.

(*a*) In all instances, one year of approved internship and one year of approved residency will be required, except as indicated under Plan G. The graduate training credit of one year heretofore granted as a result of active duty as a commissioned officer in the armed forces during the period beginning Dec. 7, 1941, and ending Jan. 1, 1947, and during the Korean emergency beginning June 1, 1950, and ending July 1, 1954, may not be applied in satisfaction of the one year of approved residency referred to in Plans D, E, or F unless the candidate's assignment is considered by the board to have been equivalent to an approved residency.

(*b*) Following one year of internship and two years of approved residency,[2] the remaining requirements may be satisfied by:

Plan B; that is, by two years of half-time formal training followed by two years of practice limited to internal medicine, or by

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[1] During the period in which the 9-9-9 program was in effect an approved internship of 9 months will satisfy the requirement of 12 months. A residency of nine months is considered as nine months only.

[2] For the second year of approved residency one of the equivalents described under 3-Professional Qualifications may be substituted.

Plan C; that is, by five years of practice limited to internal medicine.

(*c*) Following one year internship and one year of approved residency, the remaining requirements may be satisfied by:

Plan D[3]; that is, by four years of half-time formal training followed by two years of practice limited to internal medicine; or by:

Plan E[3]; that is, by two years of half-time formal training followed by five years of practice limited to internal medicine, or by:

Plan F; that is, by eight years of practice limited to internal medicine.

(*d*) Physicians who have practiced internal medicine for 12 years following an approved internship may qualify for the examinations without further training (Plan G).

Half-time formal training under expanded plans B, D, and E is defined as follows:

1. Half-time[3] as an instructor in clinical medicine in a recognized medical school in the United States or Canada.
2. Half-time[3] in a research fellowship sponsored by a recognized medical school in the United States or Canada.
3. Half-time[3] as a graduate student in an approved graduate medical school in the United States or Canada.

5. Practice Requirements: A period of not less than two years (to be completed by the time of the first written examination) of adequate clinical experience in the practice of internal medicine. This requirement may be satisfied by independent practice or in association with a recognized internist following completion of formal training.

6. Graduates of Foreign Medical Schools: All candidates who are graduates of foreign medical schools must meet the following requirements as a minimum:

(*a*) The physician must be a citizen of the United States.

(*b*) The physician must furnish proof in the form and to the extent deemed adequate by the board that he (or she) has graduated from a medical school after completing a four year full-time course in medicine.

(*c*) The physician must have a license to practice in one or more states of the United States, and have been in active practice confined to internal medicine within the state of legal residence for at least two years.

(*d*) Graduates of foreign medical schools prior to 1930 may qualify under the alternate plans of the board the same as graduates of approved medical schools in the United States.

(*e*) Graduates of foreign schools in 1930 and thereafter must, in addition to all other requirements, satisfy the requirements of one year of approved internship, and three years of approved residency or fellowship in the United States, followed by at least two years of practice limited to the field of internal medicine in the United States. If, however, their school of graduation is "recognized" by the Council on Medical Education and Hospitals of the American Medical Association, graduates of foreign schools may qualify under the various plans of the board the same as graduates of approved medical schools in the United States.

7. Candidates Graduating Prior to 1937: Candidates graduating from approved medical schools in the United States or Canada prior to 1937 may qualify for admission to examination provided their practice has been limited to internal medicine for at least two years prior to application and provided they are identified as internists by their colleagues in their community.

8. Preceptor Training: Preceptor-type training is not recognized in satisfaction of any part of the three year requirement of formal graduate training.

9. Credit for Service in the Medical Corps of the Armed Forces of the United States and Canada:

(*a*) Active duty as a commissioned officer in the Medical Corps prior to Jan. 1, 1947, may be applied as one year of residency credit or one year of practice credit, regardless of assignment. Service beyond one year may be applied as practice credit on certification of former chiefs of service that assignment were in the field of internal medicine on a a full-time basis in the care of clinical patients largely on one's own responsibility.

(*b*) Active duty as a commissioned officer in the Medical Corps from Jan. 1, 1947, to June 1, 1950, may only be applied as practice on the certification of former chiefs of service as referred to in paragraph (*a*).

(*c*) Active duty as a commissioned officer in the Medical Corps for the period June 1, 1950, to July 1, 1954, may be applied as one year of residency credit or one year of practice credit regardless of assignment. Service beyond one year may only be applied as practice credit on the certification of former chiefs of service as referred to in paragraph (*a*).

(*d*) Active duty as a commissioned officer in the Medical Corps after July 1, 1954, may only be applied as practice credit on the certification of chiefs of service as referred to in paragraph (*a*).

(*e*) Residency credit automatically granted for active service in the Medical Corps of the armed forces was discontinued as of July 1, 1954.

10. Graduates of the Chicago Medical School prior to approval by the Council on Medical Education and Hospitals of the American Medical Association and graduates of the Middlesex School of Medicine who received their degree in medicine prior to Jan. 1, 1951, and who have fulfilled all of the requirements set forth under Professional Qualifications, (Requirements for Admission to Examination and Certification), and an approved residency or fellowship of three years' duration (Plan A) and two years of practice in internal medicine may apply and, at the discretion of the executive committee or of the board, be admitted to examination.

PRINCIPLES OF TRAINING

The American Board of Internal Medicine is interested in the fact that the candidate has embarked on a career of study voluntarily and has thereby expressed the desire to excel and to participate personally in the world's progress in medicine.

Preparation must be based on years of continuous thoughtful study. Therefore, in suggesting a program for those who wish advice, the board hopes to assist the candidates to avoid inferior and superficial programs that may lead to failure and disappointment in later years.

The board believes that all internists should have a sound fundamental knowledge of anatomy, bacteriology, biochemistry, pathology, pharmacology, and physiology. Such knowledge is essential to the continued progress of any internist. The board anticipates that adequate training will be obtained in the basic sciences as applied to internal medicine during a formal three year residency program.

The board wishes to emphasize that time and training are but a means to the end of acquiring a broad knowledge of internal medicine, which the candidate must demonstrate to the board in order to justify it in certifying that he is competent to practice internal medicine as a specialty. The responsibility of acquiring the knowledge rests with the candidate. The responsibility of maintaining the standards of knowledge required for certification rests with the board.

APPLICATION

Candidates for examination must make their application on a prescribed form, which may be obtained from the office of the executive secretary-treasurer.

The application must contain a record of the candidate's premedical and medical training as well as of internships, residencies, graduate study, hospital or dispensary staff appointments, teaching positions, service in the armed forces, membership in medical societies, medical papers published, and the names of four well-known internists to whom the board may write for professional and character reference.

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[3] Half-time formal training is regarded as four hours per day for six days per week. It is required that half-time formal training will be verified by the head of the department. Verification must accompany application.

The application must be accompanied by one recent, signed photograph of the candidate mounted on the application, and the registration and examination fee of $40 to cover the written examination, of which $25 will be refunded if the application is disapproved. Upon application for admission to the oral examination, an additional fee of $50 will be required. Upon notification of certification by the board, a further fee of $10 to cover cost of certification will be required.

The requirements of graduate training and two years of practice in the field of internal medicine must be satisfied before a candidate is eligible to apply for admission.

If three or more years elapse before a candidate completes his certification, the board will require the candidate to file a new application.

METHOD OF EXAMINATION—WRITTEN AND ORAL

The examination for certification by the board comprise two parts: part 1 is written; part 2 is clinical and is an oral examination. The written examination is held simultaneously in different sections of the United States, Canada, and outside continental limits of the United States wherever eligible candidates are located. Only one written examination will be given each year. This examination will be held on the third Monday in October. This examination is divided into a morning and afternoon period for each of which three hours are allowed. The questions are of the multiple choice type, framed in such manner as the board elects, and designed to test the candidate's basic clinical acumen and his knowledge of applied physiology, anatomy, physiological chemistry, pathology, bacteriology, and pharmacology as related to internal medicine.

Candidates must pass the written examination before admission to the oral examination will be authorized. Oral examinations are held near the time and place of the annual meetings of the American Medical Association and the American College of Physicians and at such other times and places as are necessary. Announcements of all oral examinations will appear in the *Annals of Internal Medicine* and THE JOURNAL of the American Medical Association. Applications cannot be accepted until the schedule is announced in the publications referred to and cannot be accepted after the closing date as announced.

The oral examination will be conducted under the direct supervision of the board. It will be given by members of the Board of Internal Medicine with the assistance of such guest examiners as may be selected. Oral examinations are conducted at the bedside of each of two patients previously assigned to each candidate. Forty-five minutes will be allowed for the examination of each of the patients before the candidate is examined orally. Candidates will be expected to present in a concise, orderly fashion pertinent facts in the history and diagnosis. Demonstration of important physical findings will be requested by the examiner. During the oral examination questions will be asked concerning diagnostic and therapeutic procedures related to the problems under discussion and to any other aspects of internal medicine. Conciseness and clarity of statement as well as evidence of clinical maturity will be searched for, in addition to factual knowledge. Furthermore, the candidate should be prepared to demonstrate his ability to interpret objective demonstrations of roentgenologic, pathological, hematological, electrocardiographic, and other abnormalities.

REEXAMINATION—WRITTEN AND ORAL

A. *Written Examination*

1. The interval between the first and second written examinations will be not less than one year.
2. The interval between the second and third written examinations will be not less than two years.
3. The interval between all written examinations that may be permitted after failure of a third written examination will be two years. Admission to any subsequent written examination after failure of the third one may be granted at the discretion of the board.
4. A fee of $25 is required for each written reexamination. This fee is due upon application for reexamination.

B. *Oral Examination*

1. The interval between the first and second oral examinations will be not less than one year.
2. The interval between the second and third oral examinations will be not less than two years.
3. A candidate who fails the oral examination for the third time will be required to pass the written examination again before further oral examinations are permitted. Having done this, he becomes subject to the same regulations and priorities in respect to the oral examination as apply to candidates who pass the written examination for the first time.
4. A fee of $50 is required for each oral reexamination. The fee is due upon application for reexamination.
5. The effective date of the changes referred to governing readmission to written and oral examinations will be Jan. 1, 1956.

NOTE.—Candidates are not required to repeat the examinations within the specified time limits. A longer interval may be elected between both written and oral examinations. Candidates who elect an interval of three years or more between examinations must file new applications.

CANCELLATIONS

A candidate who cancels his assignment for a written or an oral examination after cards of admission are mailed will be required to pay a special fee in the amount of $10 before a subsequent examination, unless his cancellation was due to personal illness or that of immediate family. This provision becomes necessary because of the large number of cancellations after complete arrangements have been made, and the expense incident thereto.

CERTIFICATES

The certificate issued by the American Board of Internal Medicine shall be in such form as to comply with the articles of incorporation and the bylaws and shall be signed by the officers and members of the board and shall bear the official seal of the board.

Certificates of the board will be issued to candidates who have satisfactorily completed the written and oral examinations and have been officially certified by the board.

SUBSPECIALTY BOARDS

Allergy, cardiovascular disease, gastroenterology, and pulmonary diseases are recognized subspecialties.

Each subspecialty application is individually considered and acted upon by the subspecialty board concerned. The candidate is not eligible for examination until his application has been approved by the subspecialty board concerned and confirmed by this board. Please see Internship and Residency Number of THE JOURNAL of the American Medical Association for statement of requirements.

All candidates must pass the written and oral examinations in internal medicine before admission to examination in a subspecialty of medicine referred to. The subspecialty examinations are oral only and may be taken at a scheduled subspecialty examination subsequent to the candidate's certification in internal medicine. Announcement of the subspecialty examinations will appear in THE JOURNAL of the American Medical Association and the *Annals of Internal Medicine.*

Upon request to the office of the executive secretary-treasurer application forms will be forwarded and should be returned to his office when completed.

INFORMATION ON CERTIFICATION IN ALLERGY BY THE AMERICAN BOARD OF INTERNAL MEDICINE

1. Two years, full time, including training both in allergy and internal medicine in an approved allergy clinic and hospital; or

2. One year, full time, including training in allergy and internal medicine in an approved allergy clinic and hospital, and two additional years of attendance and participation at least two half days weekly at an approved allergy clinic; or

3. Five years of attendance and participation at least two half days weekly at an approved allergy clinic; or

4. Twelve years in the practice of allergy after fulfilling the professional qualifications for certification in internal medicine, with evidence of sustained scientific interest.

5. All candidates who desire consideration in allergy must be certified in internal medicine before applying for admission to examination in allergy.

The candidate should be prepared for oral and clinical examination in the anatomy, pathology, physiology, and biochemistry of reactions of hypersensitivity. This will include immunology, immunochemistry, atopy, allergy of infection, collagen disease, and experimental hypersensitivity. He should be proficient in clinical diagnosis, laboratory procedures, and in the treatment of allergic diseases. He should be familiar with the physiology of respiration, especially as modified by bronchial asthma and pulmonary emphysema and with the pharmacology of drugs used.

NOTE.—Fellowship or research assignments not approved by the Council on Medical Education and Hospitals will require certification by the chief of service that such assignment was equivalent in graduate training opportunities and patient responsibilities to that of an approved residency in allergy recognized by the board. This certification must be presented before the application is filed.

RECOMMENDATIONS OF THE SUBSPECIALTY BOARD ON CARDIOVASCULAR DISEASE CONCERNING QUALIFICATIONS OF CANDIDATES FOR CERTIFICATION IN THIS SUBSPECIALTY

The applicant should be of good character and excellent standing in his community, as attested by letters from sponsors of known integrity.

The applicant should have reached a state of maturity compatible with the acquisition of sufficient factual knowledge and experience to form a basis for sound judgment. The board believes that only exceptional persons are sufficiently mature for this subspecialty before the age of 35 years or less than 10 years after graduation from medical school.

The board will make exception to this general rule of admission to examination, under unusual circumstances, largely to avoid injustice to the younger men of outstanding ability.

The candidate must have given clear evidence of his deep and constant interest in cardiovascular disease over a period of years. The board is particularly interested in recommending for examination those applicants whose records indicate that their interest in cardiovascular disease will probably be sustained throughout life, and that their knowledge of the subject will constantly grow. Achievements in the field of research are regarded as evidence of such interest, but publication of articles or prolonged training in research work is not considered essential. Consideration will be given to the circumstances of each applicant's training and experience; those who have been in communities and institutions that offered excellent opportunities for contributions to the knowledge of cardiovascular disease will be expected to have made such contributions. Consideration will be given to the difference in experience of those whose opportunities for research have been more limited.

In most cases, *it is deemed essential that the candidate*, after thorough training in internal medicine, shall have received at least one full year of postgraduate education in cardiovascular disease, preferably under the guidance of a person known to be experienced and sound. Qualifications will be appraised by the cardiovascular board and admission of the applicant to the examination will be determined by a majority opinion of the board.

Every candidate admitted to the certifying examination in cardiovascular disease will be expected to possess specialized knowledge of the kind indicated below. This list is by no means complete; it is intended to indicate the nature, rather than the extent, of the knowledge every applicant should have. In terms of its scope it should be regarded as the minimum, not the maximum. Persons possessing special knowledge and training in peripheral vascular disease may be expected to have a higher standard required in the examination in that portion of the field than in the certain details of other branches of cardiology, and the converse may be similarly applied.

1. Full and accurate knowledge of the anatomy of the normal and diseased heart, including its relationships to the external chest and to the other mediastinal structures. A comprehensive anatomic knowledge of all important blood vessels including their aberrant locations.

2. A thorough knowledge of the normal and pathological physiology of the heart and peripheral circulation.

3. Detailed knowledge of the diagnostic signs that permit the recognition of all important diseases of the heart and blood vessels, such as arteriosclerosis, arteriosclerotic heart disease, syphilitic heart disease, rheumatic heart disease, constrictive pericarditis, auricular and ventricular septal defects, coronary thrombosis with myocardial infarction, thromboangitis obliterans, Raynaud's syndrome, coarctation of the aorta, aneurysm, patent ductus, arteriosus, periarteritis nodosa and lymphedema.

4. Familiarity with the special methods used in the study of diseases of the heart and blood vessels. In the case of the heart, these include such techniques as electrocardiography, roentgenography, catheterization and angiocardiography; in the case of vascular disease, such techniques as the use of the oscillometer and thermocouple, arteriography, and venography, reflex vasodilatation, the cold pressor test, color changes with evaluation, dependency, temperature, etc.

5. Accurate knowledge of the pathological changes associated with the more important diseases of the heart and blood vessels, sufficient to enable the candidate correctly to evaluate the pathological condition from gross specimens or microscopic sections.

6. Fairly extensive and detailed knowledge of the pharmacology relating to heart and blood vessels. This must include full knowledge of the important relationship of the autonomic nervous system both to the heart and to the peripheral vessels, and the effects of stimulation or paralysis of the various parts of the autonomic system by drugs or by surgical methods. The candidate should be intimately familiar with the use and effects of such important drugs as digitalis, quinidine, heparin, papaverine, epinephrine, dicumarol, penicillin, diuretics, sedatives, etc.

7. A sound understanding of the indications for conservative therapy, as well as for surgical procedures, in cardiac and peripheral vascular diseases (patency of the ductus arteriosus, arteriovenous anastomoses, constrictive pericarditis, scalenus, anticus syndrome, etc.).

In summary, it is the desire of the American Board of Internal Medicine and its Subspecialty Board in Cardiovascular Disease that physicians shall not be admitted to the certifying examinations unless they have exceptional qualifications as individuals and as experts in this subspecialty of medicine.

INFORMATION ON CERTIFICATION IN GASTROENTEROLOGY BY THE AMERICAN BOARD OF INTERNAL MEDICINE

A. Professional Standing

The candidate must have at least two letters from recognized internists or gastroenterologists, which must attest to the candidate's professional qualifications and ethical standing, whether he is specializing in gastroenterology and if not entirely, giving an opinion as to approximately how much of his work is devoted to it.

B. Education

1. The candidate must admit proof of adequately supervised training in the recognized gastroenterologic procedures, including gastric and hepatobiliary function tests, proctosigmoidoscopy and gastrointestinal roentgenology (film interpretation).

2. The candidate must present evidence of fulfillment of one of the following requirements:

   (*a*) Formal graduate course in gastroenterology, full time for at least eight months in a recognized institution.

   (*b*) Residency or fellowship for at least one year in gastroenterology under tutelage of a recognized specialist.

   (*c*) In the absence of (*a*) and (*b*), attendance and active participation in a ward service or in a gastrointestinal clinic, recognized in standing, for at least five years.

3. If requirements (*a*) or (*b*) under the above heading have been met, only three years of (*c*) will be required.

C. Practice

At least 60% of the candidate's work must have been devoted to gastroenterology for at least three years before application.

INFORMATION ON CERTIFICATION IN PULMONARY DISEASES BY THE AMERICAN BOARD OF INTERNAL MEDICINE

1. Candidates for certification in pulmonary diseases shall fulfill the requirements of the American Board of Internal Medicine as to:

(*a*) General qualifications.

(*b*) Professional education.

(*c*) Special training.

2. In addition to the general requirements of the American Board of Internal Medicine, candidates shall:

(*a*) Have completed a special training period in pulmonary diseases to include at least a year's work in a sanatorium or hospital for tuberculosis and at least another year in the practice of pulmonary diseases in such an institution or in association with an older man competent in this field.

(*b*) Submit an application to the advisory board in this specialty, which must be approved by all of the members of this board.

(*c*) Pass the written and oral examination of the American Board of Internal Medicine.

(*d*) Pass the oral and practical examination in pulmonary diseases.

AMERICAN BOARD OF NEUROLOGICAL SURGERY

Francis C. Grant, Chairman, Philadelphia.
Howard A. Brown, San Francisco.
George Baker, Rochester, Minn.
Eldridge Campbell, Albany, N. Y.
William V. Cone, Montreal, Canada.
Franc Ingraham, Boston.
Edgar Kahn, Ann Arbor, Mich.
A. Earl Walker, Baltimore.
James C. White, Boston.
Edgar Fincher, Emory University, Ga.
Leonard T. Furlow, Secretary-Treasurer, Washington University Medical School, St. Louis.

GENERAL QUALIFICATIONS

1. Moral and ethical standing in the profession satisfactory to the board of directors.

2. It shall be discretionary with the board to accept for examination candidates who have been in practice more than six years but whose formal training fails to meet the full requirements.

3. Properly qualified candidates who are permanent residents in and citizens of other countries and are legally qualified to practice medicine there, and who have received their training in neurological surgery in the United States of America or Canada may apply for certification by the American Board of Neurological Surgery.

4. A special certificate may be issued to foreign (not United States of America or Canadian citizens) candidates who have received their training in neurological surgery in the United States of America or Canada and who are returning to their own country at the end of their training period, upon passing successfully the regular examinations of this board, without completion of the requirement of two years in the practice of neurological surgery. This special certificate shall be appropriately identified to distinguish it from the regular certificate of this board.

PRELIMINARY PROFESSIONAL STANDING

1. Graduation from a medical school that is acceptable to the American Board of Neurological Surgery.

2. Completion of a surgical internship of not less than one in a hospital acceptable to the board, or its equivalent opinion of the board. (A one year rotating internship ot satisfy this requirement.)

SPECIAL TRAINING

A period of graduate study of not less than four years beyond the year of general surgical training in an approved hospital, or in a recognized graduate school of medicine acceptable to the American Board of Neurological Surgery. Of this training period, at least 30 months must be devoted to clinical neurological surgery. The training in clinical neurological surgery *must be progressive and not obtained* during repeated short periods in a number of institutions. It is preferable that at least two years of this training be had in one institution, and the board will not ordinarily approve periods of training in clinical neurological surgery of less than one year.

Furthermore the candidate must prepare himself to pass a board examination in general surgery, organic neurology, neuropathology, neuroanatomy, neurophysiology, neuro-ophthalmology, and neuroradiology.

An additional period of not less than two years of satisfactory independent practice of neurological surgery.

The above represents only the minimum requirements of eligibility for examination for certification by the board.

APPLICATIONS

An application on the official application blank in such form as may be adopted from time to time by the board of directors, in order to be considered at any meeting, must be in the hands of the secretary-treasurer of the board not less than six months before the date of such meeting.

The secretary-treasurer of the board on receipt of an application shall forthwith make inquiries from those to whom the candidate refers and from such other persons as the secretary-treasurer may deem desirable, after which he shall forward the application to the committee on credentials. This committee shall consider the application and other information available and notify the secretary-treasurer its recommendation whether or not the applicant is acceptable. The certification of a candidate shall be approved by a majority of the members of the entire board at any meeting held for such certification.

PAYMENT OF FEES

The fee for certification, with or without examination, shall be $100.

The candidate for examination on filing his application shall accompany it with an application fee of $25. When notified by the secretary-treasurer that he is eligible for examination he shall send the examination fee of $75 to the secretary-treasurer at least two weeks before the date of the examination.

REEXAMINATION

A candidate who has failed in one examination is eligible for reexamination in the subject, or subjects, in which he failed within three years, on payment of a reexamination fee of $25. A candidate who has failed in one examination and who does not apply for reexamination within three years, or a person who has applied within that time but who has failed a second time, will be considered a new applicant.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

Walter T. Dannreuther, President, New York.
F. Bayard Carter, Vice-President, Durham, N. C.
Robert A. Kimbrough, Jr., Vice-President, Philadelphia.
Willard R. Cooke, Galveston, Texas.
Daniel G. Morton, Los Angeles.
John L. Parks, Washington, D. C.
Herbert E. Schmitz, Chicago.
Robert L. Faulkner, Secretary-Treasurer, 2105 Adelbert Rd., Cleveland 6.
Lawrence M. Randall, Assistant Secretary, Rochester, Minn.

REQUIREMENTS

Each applicant before he may become eligible to receive such certificate or other evidence of recognition:

1. Must have had conferred on him a degree in medicine by an institution of learning approved by the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association.

2. Must establish in a manner satisfactory to the board of directors that he is a physician duly licensed to practice medicine in the United States or Canada and is a member of his county or district medical society, and

(*a*) that he is of high ethical and professional standing.

(*b*) that he has received at least minimal training bilaterally, i. e., in both obstetrics and gynecology. Training in one branch only is no longer sufficient for qualification. The term "minimal training" as used here is at present defined as meaning at least one year of full-time formal training, in the branch of either obstetrics or gynecology relegated to a minor role in a candidate's training program as related to his preference and plans for practice. The required total of formal residency training is three years.

(*c*) that physicians otherwise qualified, who were graduated before Jan. 1, 1939, and whose required training was in obstetrics or gynecology alone, and who have confined their practice to obstetrics or gynecology for at least five years immediately prior to application, be accepted for examination as candidates for certification in either obstetrics or gynecology. In all other respects requirements for eligibility remain the same as for those physicians graduated since 1939. At least a fundamental knowledge of both obstetrics and gynecology is essential regardless of whether a candidate's practice is limited to one or the other branch.

3. Must make application for investigation of his credentials and a survey of his character.

4. Must assure the board that he is limiting his practice to obstetrics and/or gynecology and that he intends to continue to do so, except for possible military duties. Candidates must have been in practice limited to the specialty for two years, following completion of their specialty training.

This board will not accept applicants for examination who are not full citizens of the United States or of Canada, though they may be residents of either country. Foreign-born applicants must have been certified by either the National Board of Medical Examiners or licensed to practice medicine in the United States or Canada by a state or provincial board of licensure. Notarized statements, not original citizenship papers, must be furnished when the application is filed attesting to the fact of full citizenship in the United States or Canada, if the applicant is foreign born. Further, there will be required a probationary period of at least three years from the date of licensure in the practice of medicine in these countries before such a candidate may be admitted to examination.

Applicants who have been certified by one of the other American specialty examining boards will not be eligible for certification by this board until they have relinquished the certificate previously conferred, except upon special action to the contrary taken by the American Board of Obstetrics and Gynecology.

The board has ruled that physicians who accept male patients in their private or other practice, for operative or other care, cannot be regarded as specialists in obstetrics and gynecology, except by special ruling when this is related to active military duty.

This board deprecates engagement in fields of practice other than that in which candidates profess to be specialists. The board does not exclude from examination, however, obstetricians-gynecologists who practice abdominal surgery and urology in the female because of the correlation of these activities. The sole exception to this provision is that it is permissible for candidates of the American Board of Obstetrics and Gynecology to participate in emergency care plans operated under the auspices of district, county, or state medical societies.

Military service or any other similar patriotic service, such as work with Selective Service boards, etc., have not been construed as nonlimitation of practice in violation of the board regulations. Officers (regular or reserves) certified by this board and on duty with "Family Dependent Services" are expected to be permitted to limit their work to the specialty, as in civilian life, and not be engaged regularly in general or other practice.

The minimal requirements for all candidates will be uniform as follows:

1. Completion of at least one year intern service in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association. This need not be a general rotating internship, although this latter is preferred.

The board accepts the fifth or "intern" medical school year required at some schools in lieu of the usual fifth or intern "clinical training" year following graduation.

2. A minimum of seven years of training and practice after the first intern year, to include at least three years of residency training in clinical obstetrics-gynecology in approved institutions, or adequate preceptorship training. (See section on Preceptorship Training.) Following completion of acceptable training two years of post-training practice limited to the specialty are required.

The Council on Medical Education and Hospitals of the American Medical Association listed for the first time in 1950 (*J. A. M. A.*, April 15, 1950, pages 1216, 1204-1211), 149 inspected and approved one year residencies in general surgery "as offering training in general surgery . . . in preparation for residencies in surgical specialties." Such residencies are recommended by this board as desirable additional preparation, particularly when they provide opportunities for training in abdominal surgery. (See Internship and Residency issues of THE JOURNAL for lists.) As noted above, such service may be included in the total minimal eight years required after graduation.

Post-training practice period may include full-time medical school or other positions within the specialty, and actual practice within the specialty as an assistant, associate, or independently.

Periods of residency in obstetrics-gynecology in excess of the required three years will not be accepted as a substitute for any part of the two required years of post-training practice except in the cases of men advancing from their residency training into and planning to remain in full-time teaching positions in medical schools and their affiliated hospitals.

3. Basic science training should emphasize the relation of the basic sciences, anatomy, pathology, physiology, biochemistry, and bacteriology to the application of surgical principles which are fundamental in all branches of surgery. More especially, for this specialty there should be training in infertility, endocrinology, oncology, irradiation therapy, electrotherapy, psychosomatic medicine, and other nonoperative methods of diagnosis and treatment. In addition, the candidate must understand and be trained in the care of emergencies, shock, hemorrhage, blood replacement, electrolyte and fluid balance, protein and nitrogen balance, choice of anesthetics, chemotherapy, acidosis and alkalosis, narcotics and hypnotics, wound healing, and so on.

Studies in the basic sciences may be integrated with the clinical work or may be given separately.

SPECIAL CREDITS AND RULINGS

The board conformed with the general acceleration in programs in medical education in that it will accept a period of nine "accelerated" months as an academic year in satisfying the requirement for each of three years of residency training. Such allowances can be made only for services during the wartime period of the official "accelerated program" and are not made for services before 1943 or after the discontinuance of this acceleration in 1946.

No formal graduate courses are required. If taken, credit will not exceed six months. Fellowships will be evaluated individually for credits by the credentials committee.

An applicant serving under military orders in an Army or a Navy hospital in an obstetric-gynecologic service under supervision may be given the same credit as if he were working under a preceptor, if these departments are supervised by diplomates of this board or recognized obstetricians-gynecologists. He may obtain full residency credit if such hospital is officially approved and listed for residency training in this specialty. The credentials committee of the board will review and give consideration to each individual case. Special request must be made for such credits.

A blank log-book entitled "Medical Officers Professional Training Record" is obtainable from the offices of the Surgeons General. This record should be carefully kept and attested while in military service.

APPLICATION AND FEES

Application must be made on a special blank which will be furnished by the secretary's office and must be forwarded with the other required credentials and the application fee to the secretary's office not later than Oct. 1, 1955.

Candidates currently applying for admission to the examinations for certification are required to submit with their application a plain typewritten list of all patients admitted to the hospitals where they practice, for the year preceding their application or the year prior to their request for reopening of their application, with the diagnosis, pathological diagnosis, nature of treatment, and end result.

The application fee is $25 and is not returnable.

The examination fee is $100 and is payable when the candidate is notified of acceptance for examination. This fee is not returnable after the candidate has been officially accepted by the credentials committee and notified to report for examination.

If the candidate fails the part 2 examination on his original application, he may exercise the privilege of one reexamination (See Examinations, Part 2) but he will be required to pay a fee of $25 for such reexamination on making request that his application be reopened for this purpose. This ruling is effective on applications originally made after June 1, 1949.

The fees have been carefully computed on a basis of cost of examinations and are used entirely for administrative expenses. Examiners and associate examiners serve as such without compensation other than actual expenses.

Many prospective candidates write the secretary's office outlining in their letters their training qualifications and asking informally if they are eligible, if this training has been sufficient and, if not, what is still lacking. Any candidate should be able to make a fair estimate of his eligibility after studying these requirements.

Individual officers and directors cannot and will not make any such estimates or rulings. These are made only by the credentials committee after reviewing such requests made on a special form provided for this purpose, and submitted to the secretary for an appraisal with the fee of $15 to cover clerical expenses involved. This form is designated the "Application for Appraisal of Incomplete Training."

Personal interviews cannot be granted by the secretary or other directors of the board unless requested by the board.

Appraisal of Incomplete Training Forms should not be filed if application for certification has already been filed. This is unnecessary duplication.

All candidates must comply with the board regulations in effect for the year in which the examination is taken, regardless of when the original application was filed.

Applicants declared ineligible for admission to examination may request reopening of their applications within two years of the filing date without payment of an additional application fee. When a candidate requests that his application be reopened, he must supply the board with information to justify such further consideration. A request for the reopening of an application declared ineligible by reason of insufficient training, nonlimitation of practice, or similar items may not be approved in less than two years, although application may be made as specified above to avoid payment of an additional fee. This approval time may be reduced under exceptional circumstances. The request must have adequate supporting evidence of additional training and experience to warrant reconsideration. Preceptorship or Supplemental Training Blanks should be used for such reports, and these will be supplied on request.

After two ineligibility or postponement rulings on any candidate's application, an entirely new application must be submitted (with or without fee, according to current requirements) in order to bring data down to date. The essential feature of this should be evidence of additional training and experience.

Applicants declared eligible but who fail to exercise the examination privilege within three years of the date of filing the application are required to file a new and current application and to pay a new application fee.

Candidates should offer as sponsors or references two diplomates of this board with whom they are presently in contact, rather than men under whom they served as residents only. It is required that sponsors be from the candidate's community and currently acquainted with the candidate and his ability in his practice of the specialty.

On notice of acceptance for admission to examination, examination fee is due and also case records, which should be shipped by the candidate to the secretary's office as soon as possible and not later than the date of the part 1 written examination.

The candidate should make immediate acknowledgment of his notice of acceptance, at which time he will notify the secretary's office about when to expect his case reports.

EXAMINATIONS

Part 1 examinations are scheduled annually for early in February. The results cannot usually be mailed from the secretary's office until after April 1 following the examination. Arrangements will be made for candidates to report in any convenient city where there may be a diplomate of this board to conduct or supervise the written examination, which will be sent out from the board's office under sealed cover.

Special arrangement will be made through senior officers for conducting the written portion of the part 1 examination for men in military service. Such candidates are requested to keep the secretary's office informed at all times of changes in their mailing addresses.

All applicants accepted for examination will be required to obtain a passing grade in both the written examination and a review of case reports (part 1), before becoming eligible for the oral-clinical and pathology examinations (part 2). The passing grade for the written examination and case reports is 75%. A candidate whose grade in either or both falls below 75% is conditioned.

Reexamination for the removal of conditions in part 1 may be taken after one year but within three years after the first failure, without payment of an additional fee.

Application for reexamination in part 1 must be made by the candidate prior to Nov. 1 of any year.

Requests for reexamination in the written portion of part 1 and requests for resubmission of case reports must be filed prior to Oct. 1, 1955.

Candidates who successfully complete the part 1 examination proceed automatically to the part 2 examination held later in the year.

Requests for reexamination in part 2 must be made prior to Feb. 1, 1956.

Candidates appearing for reexamination under a new application after two previous failures will not be required, if they have passed all or part of the part 1 examinations on their first application, to repeat such examination items already successfully cleared.

Part 1.—Examination consists of:

1. A comprehensive written examination, conducted annually, including questions on both obstetrics and gynecology and related basic sciences. The written examination will be limited to a maximum period of three hours.

2. The filing, as early as possible, and not later than the date of the written examination, of 20 obstetric and gynecologic case reports, in condensed form. (See sections on Case Reports.)

Results on case reports submitted for review prior to the written examination will be announced simultaneously with those of the latter; candidates who take the written examination but fail to submit case reports on or before the date of the written examination cannot be given the grade on the latter until their case reports have been received and graded.

Part 2.—The oral-clinical and pathology examinations given all candidates are conducted by the entire board and the associate examiners. Advance announcements of examination dates and place will be made in medical journals throughout the country. (Scheduled for Chicago, May 11 to 20, 1956.)

Examination consists of:

1. Oral examination before two or more examiners.

An endeavor is made to adapt the details of the oral examination to each candidate's experience and practice. The examination is particularly directed to ascertain his familiarity with recent obstetric and gynecologic literature, the related basic sciences, the breadth of his clinical experience, and his general qualifications as a specialist in obstetrics and gynecology.

2. Pathology examination.

The candidate is expected to identify and to discuss several obstetric and gynecologic pathological specimens and microscopic sections.

Examiners report orally on each candidate to the assembled board, after which the results of their investigations are considered jointly by the entire board and associate examiners. After a general consideration of the details of the candidate's oral and pathology examinations, including a review of his capability and general adaptability, the candidate is passed or failed by the entire board of directors.

The final action of the board is based on the candidate's ethical and professional record, training and attainments, as well as on the results of his formal examination.

When a candidate fails in part 2 of the examination, he is not required to repeat part 1 but is required to repeat part 2 only. One reexamination may be taken within three years of the original examination and first failure without formal reapplication papers. Requests for reopening of the candidate's original application must be filed with a reexamination fee of $25 (See Application and Fees). Application for reexamination in part 2 must be made by the candidate prior to Feb. 1 of any year. Data regarding additional training or experience and medical school or hospital appointments acquired in the interim must be cited in the letter and verified on a Supplemental Training Form obtained from the office of the secretary of the board.

The reexamination fee will be effective only on original applications filed subsequent to the date of this announcement, namely, June 1, 1949.

The candidate may be allowed to reappear at the examination following the one failed by him. The board may, at its discretion, deny the candidate the privilege of reexamination.

Failure to exercise the privilege of reexamination within three years entails the filing of a new application with the usual application and examination fees.

After two failures in either part 1 or part 2 on the first application, the candidate may reapply with a new application and reapplication fee of $25 and reexamination fee of $100 and be readmitted to examinations once only. Exceptions to this ruling can be made only by action of the entire board of directors in annual session, usually to be based on evidence of additional training and experience sufficient to warrant such action.

CASE REPORTS

Case reports are to be sent by the candidate to the secretary as soon as possible after receiving notification of eligibility, and not later than the date of the part 1 written examination.

In the case of candidates applying for unilateral certification, case reports must pertain to the branch for which application is made.

Twenty important obstetric and gynecologic case reports, in condensed form, are required. Five cases may concern major illnesses, not necessarily operative. These reports must include a variety of material rather than a number of reports of one type. Case reports from one residency's service shall not be more than five in number.

Men holding full-time medical school faculty appointments may submit the remainder of their case records from this full-time, non-private practice, but post-training service. (See Requirements.)

The candidate should prepare and maintain in his possession a carbon copy of his case records in case of possible loss in shipping.

Evidence of adequate follow-up examination pertinent to each individual case must be submitted.

The candidate should submit separate verified index lists, in duplicate, for each individual hospital at which operations were performed. All of these must be formally signed by the responsible hospital official (preferably the hospital superintendent), attesting in each instance that the candidate was the operator.

In the upper left-hand corner of each index sheet there should appear:

Candidate's name; and name and address of hospital.

The data for each patient should be tabulated horizontally, reading thus:

1. Sequence number of case report (1 to 20).
2. Whether patient was from the candidate's residency service or his own private or ward practice, as follows: "Res. Serv." or "Own Practice." All records failing to have this information will not be considered acceptable.
3. Patient's name or identifying initials, age, parity.
4. Date of patient's admission and hospital admission number.
5. Date of patient's operation.
6. Date of patient's discharge.
7. Dates of follow-up examinations.

At the foot of each index sheet should be placed the attested statement of the hospital official, referred to above. This statement should read as follows:

This is to certify that the above listed case reports have been verified by me from the records of this hospital and these patients operated upon in this institution by Dr.————————; that the admission number and dates specified are correct. This is further to certify that the reports given the following sequence numbers (———— to ———— inclusive) were from the residency service of the afore-mentioned physicians and the reports given the following sequence numbers (——— to ——— inclusive) were from his own practice (ward or private) in this hospital and that in all instances he was the chief operator.

....Signature

......................................Official Title

Date..

Each case report should be typewritten on standard size paper, 8½ x 11 in., and those reports then assembled in sequence. Covers should not be used for separate reports, as this increases their bulk unduly. Reports should be bound loosely together in a light outside cover not larger than 10 x 12 in., so that they may be opened and held like a book. The following items should be observed:

I. Each case report should be headed by identifying information corresponding with that of the index lists, including sequence number, designation as a "Residency" or "Own Practice" case, and so on.

II. The report of the case should begin with:
1. Preoperative diagnosis.
2. Postoperative diagnosis (based on findings).

III. The report should be in condensed form, not reported in detail. Follow-up findings of not less than six months are essential. Omissions of follow-up examinations must be explained and justified.

IV. Obstetric reports that do not include essential pelvic measurements and note of methods used, will be considered incomplete. Surgical reports should contain description of the operation and the reason for selection of the procedure.

V. Each report should conclude with a critical analysis. When this is omitted the report will be considered incomplete and will not be acceptable.

GRADUATE TRAINING RESIDENCIES

This board, through the Council on Medical Education and Hospitals of the American Medical Association, has approved institutions providing acceptable residencies in obstetrics and gynecology.

The American Board of Obstetrics and Gynecology has established the following requirements for its approval of a residency in a hospital department or service:

1. It is most desirable that the chief of service of the department be certified by the board, in the interests of the proper teaching of the specialty of obstetrics and gynecology. In lieu of such certification the board will approve of persons of recognized high professional standing in the specialty. At least one additional senior member of the staff should be similarly qualified.

2. Exceptions to the foregoing, in respect to the certified status of chiefs of service and others as outlined above, can be made by assent of the committee on residency training for adequate and justifiable reasons. As examples of the latter, the degree of F.A.C.S. in obstetrics-gynecology may be accepted in

lieu of one of the two required certifications if the general reputation of the person concerned is known to the committee as national or sectional in scope, or a professorial rank without certification might be acceptable.

3. In instances where the services of obstetrics-gynecology are not combined but are separate in any given hospital, the chief of each such service seeking approval and at least one of his subordinates must be certified or otherwise qualified as outlined above.

If obstetrics and gynecology are not combined in one department, approval can be granted only if arrangements are made for some degree of rotation of residents between both services, provided both services are separately approved.

4. If gynecology is classified in the given hospital as a subdivision or subservice of general surgery, approval cannot be granted for residency training in gynecology. Exceptions have been made if the subdivision of gynecology is headed and staffed by a chief and at least one other certified by this board or otherwise qualified as specialists in obstetrics-gynecology, as specified above, thus insuring an acceptable educational program in obstetrics-gynecology.

5. Departments holding official approvals for residency training are cautioned that their totals of residents appointed must be kept to the number specified in the A. M. A.—American board approval notification. Dilution of training facilities by unauthorized appointment of residents in excess of these numbers may be cause for reinspection and changes in approval status of such hospitals and their special services.

6. For further details of requirements and qualifications for approval for residency training, hospital officials should refer to the latest special issues of THE JOURNAL of the American Medical Association as they appear during each year, dealing with these subjects, or should apply to the Council on Medical Education and Hospitals of the American Medical Association for bulletins entitled Essentials of Approved Residencies and Fellowships.

7. Application for residency approval must be made in triplicate on special forms provided for this purpose. These forms may be obtained from the secretary of the Council on Medical Education and Hospitals of the American Medical Association. All statements amplifying an application should also be made in triplicate. The hospital should keep a duplicate of all papers.

8. The formal application, with all papers, for residency training approval should be submitted primarily to the Council on Medical Education and Hospitals of the American Medical Association, 535 N. Dearborn St., Chicago 10. Action is taken jointly by the Council and this board after survey by the Council.

9. Approvals are granted according to adequacy of the training program and teaching facilities of various institutions on the following several bases: (*a*) one-year approval in obstetrics and gynecology (combined) or one-year approval in obstetrics and/or in gynecology (separate), correlated basic science instruction being an essential part of the first year; (*b*) two-year approval in obstetrics and gynecology (combined) or two-year approval in obstetrics and/or in gynecology (separate), provided there is opportunity in the latter instances for some degree of rotation between the two services as well as laboratory instruction in basic sciences; (*c*) three-year approval in obstetrics and gynecology (combined) or in obstetrics or in gynecology, provided there is opportunity for one to one and one-half years' service in the branch of the specialty opposite to that in which the candidate holds appointment, as well as laboratory instruction in the basic sciences of both branches.

Exchange residencies within the specialty between approved institutions are acceptable and to be encouraged. Many authorities believe that training in more than one institution is broadening to the candidate. "Farming out" to unapproved institutions or services is not acceptable unless the work of such services is directly and carefully supervised by the chiefs of the service in the approved hospital under which the man is actively appointed nd working. This should be attested by such chiefs.

Exchange residencies into other specialties cannot be permitted to subtract from the minimal required three years of training divided between obstetrics-gynecology.

As noted elsewhere, two years of post-training practice limited to the specialty is necessary before a candidate becomes eligible for certification.

This board has no objection to residency services being arranged by hospitals for periods longer than three years, unless this dilutes the candidate's clinical training opportunities too much during the first three years. However, the board does not accept a fourth year, or more, of residency training as a substitute for any part of the required two years of post-training practice. The importance of post-training practice in the specialty is emphasized as an opportunity for maturing of the candidate and for colleague appraisal of a man's ability when working on his own responsibility in his chosen community.

Exception to this ruling may be made for men advancing from their training into and planning to remain in full-time teaching positions. These men then must complete at least two years in such positions. Consequently the only institutions in which men may work as fourth and fifth-year residents and obtain credit for this time as "post-training practice" are those directly affiliated with approved schools of medicine as teaching hospitals for undergraduate instruction. These "full-time" men must hold faculty appointments, must have teaching duties with undergraduate students, must be given independent authority more than that of residents, and must make a declaration of intention to remain in full-time teaching work.

10. Any physician formally obligating himself to serve a residency in a Council on Medical Education and Hospitals of the American Medical Association-American Board of Obstetrics and Gynecology approved hospital and thereby eliminating other possible candidates from the position, who breaks his contract without justifiable cause, either before beginning his service or during his period of service, except by mutual consent and agreement between the candidate and the hospital, may be barred from the examinations for certification at the discretion of the board.

11. It should be recalled by all concerned that credits for graduate training may be obtainable in certain instances for residency or assistantship service in hospitals not officially approved for residency training. Each such case must be individually considered, and credits will be largely dependent on the teaching qualifications of those in charge of the service, and the clinical facilities of the hospital in question.

PRECEPTORSHIP TRAINING

After July 1, 1955, the board will no longer accept training solely by preceptorship in fulfillment of educational requirements for admission to examination. To be eligible for preceptorship thereafter the candidate must have had a minimum of one year formal residency training in an institution approved by the board for residency training in obstetrics and/or gynecology.

After the above date, candidates who propose preceptorship training must notify the secretary of the board of such intent and request an application form. When this has been completed, signed by the preceptor and preceptee and returned to the secretary, it will be submitted (as has long been true of residency training programs) to the residency training committee of the board for their decision.

If the program is approved the preceptor must supervise closely the candidate's work and keep an informative record of the candidate's performance. The preceptor and the preceptee shall report in writing to the secretary of the board at the end of each six months of preceptorship, outlining the progress of the training program. This information will be placed in the candidate's application for admission to examination in order that it may be evaluated by the credentials committee.

As a general rule each year of preceptor training will receive a six months' credit toward the total of three years of training necessary for admission to examination. As is the case with candidates whose training has been entirely by formal residency, each application will be evaluated finally by the credentials committee.

An acceptable preceptor preferably shall be one certified by the American Board of Obstetrics and Gynecology and must have been certified for a minimum of five years. Fellowship in the American College of Surgeons or long experience and established reputation as an obstetrician-gynecologist without either of the above qualifications may qualify the preceptor.

Preceptor and preceptee must work in a hospital approved by the Joint Commission on Accreditation of Hospitals.

The post-training practice requirements cannot be carried on concurrently with preceptorship training.

CERTIFICATION

Each certificate granted or issued does not of itself confer or purport to confer upon any person any degree or legal qualifications, privileges, or license to practice obstetrics or gynecology, nor does the board intend in any way to interfere with or limit the professional activities of any duly licensed physician who is not certified by this board. The chief aim of the board is to standardize qualification for specialists in obstetrics and gynecology, and to certify as specialists those who voluntarily appear before the board for such recognition and certification according to its regulations and requirements.

The board does not subscribe to any hospital rule that certification is to be required for medical appointments especially in ranks lower than chief or senior staff of hospitals, or associate professor in schools of medicine, for the obvious reason that such appointments constitute desirable specialist training.

Even though certification or its full equivalent may be considered a desirable requisite to appointment in key positions, as on the senior or chief staff, particularly of hospitals expecting to conduct approved services for training of residents, it was never intended by this board that certification should be required by any hospital as a prerequisite to appointment, especially in such lesser positions.

AMERICAN BOARD OF OPHTHALMOLOGY

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Address all communications to the American Board of Ophthalmology, Cape Cottage, Maine.

NO DEGREES OR LEGAL RESTRICTIONS

Each certificate granted or issued does not of itself confer or purport to confer on any person any degree or legal qualifications, privileges, or license to practice ophthalmology, nor does the board intend in any way to interfere with or limit the professional activities of any duly licensed physician. Its chief aim is to elevate the standards of qualification for specialists in ophthalmology and to certify as specialists doctors of medicine who appear before the board for such recognition and certification, according to its requirements and regulations.

REQUIREMENTS

All candidates must comply with current board regulations regardless of time of filing application. The board, acting as a committee, reserves the right to reject an applicant for any reason deemed advisable and without stating the same, and the action of the board shall be final. Many candidates write the secretary outlining their training and asking for an estimate of their status and the further training required. The board's requirements are published to provide this information, and any candidate should be able to estimate his eligibility after studying these requirements. Individual officers or members of the board cannot and will not make such estimates. They will be made only by the committee on requirements, upon submission of the application for examination and the payment of the registration fee which must accompany it. Personal interviews with officers and members of the board should not be requested at any time.

PREREQUISITES

1. High ethical and professional standing.

2. Full citizenship in the country where the candidate practices. (Limited to countries of North and South America, their possessions and territories, and the Philippine Republic.)

3. A degree from a medical school of high standing, satisfactory to the board and approved by the Council on Medical Education and Hospitals of the American Medical Association. An applicant whose training has been received outside of the United States and Canada must present credentials satisfactory to the board and is required to have the certificate of the National Board of Medical Examiners if he has been in practice less than 10 years.

4. Completion of an internship of not less than one year in a hospital approved by the same Council.

5. Completion, by the time of the written qualifying test, of not less than 36 months (a total of 60 months is required of candidates practicing both ophthalmology and otolaryngology) of combined study, training, and practice of ophthalmology in approved medical schools, hospitals, clinics, dispensaries, laboratories, preceptorships, and private practice.

6. Effective Jan. 1, 1957:

(*a*) Licensure in the state, province, or country where the candidate practices.

(*b*) Individuals who have completed three years of formal ophthalmological training (residency and basic science courses) will be eligible to apply for the written qualifying test after completion of one year of practice or one year of institutional work. All other individuals (with less formal training) will be eligible to apply for the written test after 60 months in ophthalmology or 72 months of combined ophthalmology and otolaryngology. A basic course is recognized as equivalent in time to residency training.

GENERAL REQUIREMENTS FOR ALL CANDIDATES

1. Application forms must be filled out completely and accurately. Letters of endorsement, together with any other required credentials, must be sent to the secretary's office before the deadline date.
2. Fee of $100 remitted with application.
3. A list of papers or books published.
4. Written qualifying test.
5. Practical examination.
6. Special review of ophthalmic surgery.
7. Membership in the American Medical Association or such other societies as are recognized for the purpose by the Council on Medical Education and Hospitals of the American Medical Association.

FEES

For written test and original examination, $100 (as mentioned above).

Repeating written qualifying test, $65.

Repeating practical examination, $65.

Single conditions, written or practical, $25.

Two or more conditions, $35.

Written qualifying test must be taken within three years of date of application. Thereafter new application and fee are required.

The fees have been carefully computed on a basis of cost of examinations and are used entirely for administrative expenses. Examiners serve without compensation other than actual expenses.

SPECIAL TRAINING

This shall include:

1. Graduate study of the basic medical sciences which are fundamental to the intelligent practice of ophthalmology, particularly: anatomy, histology, embryology, optics, physiological optics, visual physiology and psychology, pathology, bacteriology, pharmacology, disorders of ocular motility and binocular vision, perimetry, and in the skillful adjustment and use of instruments such as the ophthalmoscope, retinoscope, slit lamp, and microscope. Mere factual knowledge is not sufficient; the candidate must have had training in the application of these subjects and in their use in clinical ophthalmology, especially in refraction.

2. Active clinical experience in approved hospitals, clinics, dispensaries, and private practice. Library and laboratory facilities should be utilized for intensive study of cases.

The subject matter to be covered under 1 and 2 is outlined in the syllabus prepared by the board.

These requirements may be met in various ways:

BASIC STUDIES

Anatomy and histology of the normal eye
Embryology and developmental abnormalities
Biochemistry
Pathology
Microbiology and immunology
Optics and physiological optics
Ocular physiology
Medical ophthalmology
Pharmacology
Neuro-ophthalmology
Principles of ophthalmic surgery

These may be covered by:

A. *Graduate Study.*—By a curricular course in the basic sciences related to ophthalmology in an approved graduate medical school.

B. *Postgraduate Study.*—By courses in individual basic sciences related to ophthalmology as given at various approved institutions. The Home Study Course of the American Academy of Ophthalmology and Otolaryngology is recommended.

C. *Residency.*—By advanced study of these subjects during a residency and by correlation of the principles involved with clinical problems.

D. *Research, Fundamental and Clinical.*—By the detailed study, under supervision or as assistant to an experienced research worker, of some problem or topic which brings the basic sciences into direct relation with the concrete clinical problem.

CLINICAL EXPERIENCE

A. By residency in an approved hospital. The most desirable of these residencies have regular lectures covering the entire field of clinical ophthalmology and of the basic subjects as applied in clinical practice. Many of these have seminars at which residents report cases which they have carefully worked up. These are discussed by the other residents and by the staff, and the method of presentation as well as the subject matter, is critically considered.

B. By residencies in hospitals in which regular instruction by lectures and quizzes and seminars is not available. The syllabus issued by the board will guide the resident in his selection of topics to be studied.

C. By fellowships in ophthalmology.

D. By preceptorship with a well-trained and critical ophthalmologist.

E. After completing a residency it is of great advantage to secure a position in a clinic as fellow or assistant. This may require only part-time work, but due credit will be given. Its value to the student depends on how much study he puts into it and on how competent his seniors are.

F. Research under competent critical and sympathetic supervision will give firsthand insight into (1) the methods whereby old knowledge was and new knowledge is acquired and (2) the pitfalls that accompany attempts to enlarge the sphere of knowledge. Only in this way can the candidate evaluate basic facts in the intelligent critical way which is expected of the specialist in practice.

G. The candidate who cannot secure the type of residency he desires should not despair, for his progress depends far more on how he uses his opportunities than on the opportunities themselves.

MILITARY SERVICE

Credit for military service is given on an individual basis, each case being considered on its own merits and the amount of credit allowed is determined by the board when the information is submitted with the application.

WRITTEN QUALIFYING TEST

Before being accepted for examination, candidates are given a written test to ascertain their qualifications. The questions may cover any part of ophthalmology and are especially devoted to the basic studies as listed above. The written test will be given in several principal cities at the same time. Choice of cities is determined largely by the geographical distribution of candidates. Candidates found acceptable will be notified to appear for a subsequent practical and clinical examination in ophthalmology.

EXAMINATIONS

Examinations usually are held annually at or near the time and place of the meeting of the American Medical Association; also at other times and places at the discretion of the board, depending on the number of applications from any region.

The board reserves the right to limit the number of candidates to be admitted to any scheduled practical examination.

Candidates must be examined in all subjects listed in the sections titled Basic Studies and Practical and Clinical Examination.

PRACTICAL AND CLINICAL EXAMINATION

The subjects of the practical examination are as follows: (1) External Diseases, (2) Ophthalmoscopy, (3) Histopathology, (4) Refraction, (5) Motility, (6) Ophthalmic Surgery, and (7) Perimetry.

1. *External Diseases of the Eye and Adnexa.*—Various methods of examination, diagnoses, and treatment.

2. *Ophthalmoscopy.*—Patients will be examined by the candidate and the findings described or drawn. A candidate is required to bring his own ophthalmoscope.

3. *Pathology.*—The candidate will demonstrate familiarity with general clinical pathology as well as the etiology, pathology, and bacteriology of diseases of the eye. He will be asked to examine microscopic slides and to recognize normal and pathological histology of the eye.

4. *Refraction.*—A candidate will examine patients and show mastery of various methods, and of the principles of refraction and of retinoscopy. He should bring his own retinoscope.

5. *Motility.*—The candidate will demonstrate on patients his familiarity with routine methods of examination and diagnosis.

6. *Ophthalmic Surgery.*—Examination of surgical patients and discussion on principles of ophthalmic surgery.

7. *Perimetry.*—The candidate will be given an opportunity to examine patients by use of the arc perimeter, the tangent screen, and the stereocampimeter. He may also be required to interpret charted fields.

SPECIAL REVIEW OF SURGICAL CASES

The board now requires of all candidates a list of ophthalmic operations performed within two years prior to examination. This list is to be presented with application.

The operations should be listed in groups of each type of surgery. The numbers of operations in each group must be totaled and the total number of all operations shown. This list must contain the following data:

1. Date.

2. Condition or conditions for which operation was performed. Complications during hospitalization.

3. Name and character of operation.

4. Identification by hospital or clinic number, or the name of a consultant or conferee, who was present at the time of operation.

Circumstances that prevent any candidate from fulfilling this requirement should be fully explained, with detailed statement of candidate's surgical experience.

CERTIFICATION

The decision of the board is final as to the candidate's passing, failure, or partial failure. The final action of the board is based on the candidate's ethical and professional record, training and attainments, as well as on the results of his formal examinations.

Certified ophthalmologists should refer to themselves as diplomates of the American Board of Ophthalmology. (There are only 12 members of the board and these are elected from the 3 component societies.)

REEXAMINATION

Candidates may be reexamined as often as they desire on satisfactory evidence of adequate additional preparation and payment of reexamination fee. When a candidate is conditioned in one or more subjects the committee on examinations shall decide on the merits of the case and the length of time that must elapse before reexamination in these subjects. A minimum of two years additional preparation is required of candidates who fail in all subjects. The board may, at its discretion, deny the candidate the privilege of reexamination.

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GENERAL ELIGIBILITY REQUIREMENTS

1. Satisfactory moral and ethical standing in the profession.

2. Graduation with a degree of doctor of medicine from a medical school of the United States or Canada, recognized by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a foreign school on the approved list of the afore-mentioned Council.

3. Completion of an internship of not less than one year in a hospital approved at that time by the Council on Medical Education and Hospitals of the American Medical Association or, if trained in foreign countries, in institutions considered satisfactory by the American Board of Orthopaedic Surgery.

4. Completion of one year of resident training in general surgery in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association or substitute training in general surgery considered satisfactory by the American Board of Orthopaedic Surgery. The minimum of one year of training in general surgery is in addition to the minimum of one year of internship. This requirement may be fulfilled by substituting a second year of internship, by time spent in research, by time spent on a service in which there is an overlap of interest with orthopedic surgery, by a fourth year of approved orthopedic resident training, or by surgical work in private or military life.

5. Completion of formal requirements for part 1 or part 2 examinations. These formal requirements can be satisfied only by training in one or two categories: (*a*) resident orthopedic training and (*b*) preceptorship training.

Applicants may not be admitted to examinations, or be certified, on the basis of extensive specialized practice and/or teaching appointments and/or many short unapproved courses.

6. Restriction of practice to orthopedic surgery.

REQUIREMENTS FOR PART 1 EXAMINATIONS

1. Completion of and compliance with afore-mentioned general eligibility requirements.

2. Citizenship in the United States or Canada, or possession of citizenship papers showing intent to become a full citizen.

3. Following completion of a year of internship, satisfactory completion of a minimum of one year of general surgical training, or its substitute, plus (*a*) two years of approved training in orthopedic surgery under a program of resident training, or (*b*) completion of a minimum of five years of orthopedic training under a preceptorship program.

4. Evidence of competence in training.

5. Approval for examination by the committee on eligibility of The American Board of Orthopaedic Surgery.

REQUIREMENTS FOR PART 2 EXAMINATIONS

1. Successful completion of part 1 examinations.

2. Full citizenship in the United States or Canada.

3. License to practice in the United States or Canada.

4. Satisfactory completion of a minimum of three years of approved resident training in orthopedic surgery, plus a minimum of two subsequent years of practice period for applicants trained under resident orthopedic training programs.

5. Satisfactory completion of a minimum of five years of practice period for applicants trained under preceptorship programs.

6. Evidence of competence in practice.

7. Approval for examination by the committee on eligibility of the American Board of Orthopaedic Surgery.

APPLICATION AND EXAMINATION FEE SCHEDULE

1. Application for part 1, fee $15, not returnable.

2. Examination, part 1, fee $35, payable only if approved for examination. Approved candidates failing to appear for scheduled examinations forfeit fees.

3. Application for part 2, fee $15, not returnable.

4. Examination, part 2, fee $50, payable only if approved for examination. Approved candidates failing to appear for scheduled examinations forfeit fees.

5. Reexamination, part 1, fee $35; for part 2, fee $50. No application fee is required for reexamination.

APPLICATIONS

1. Applications for part 1 examinations must be received in the office of the secretary of the board before Nov. 30 of the year preceding the examinations.

2. Applications for part 2 examinations must be received in the office of the secretary of the board before Aug. 15 of the year preceding the examinations.

3. Notices of acceptance for admission to the part 1 examinations are mailed to eligible candidates during the month of February in the year of the examinations.

4. Notices of acceptance for admission to part 2 examinations are mailed to eligible candidates during the month of November in the year preceding the examinations.

5. Questions of eligibility for examinations are decided by the committee on eligibility of the board. This committee meets twice yearly. The secretary is not empowered to rule on questions of eligibility.

6. The life of an application is three years. After this time a new application and application fee must be submitted.

EXAMINATIONS

1. Part 1 examinations are held once yearly, usually in April or May, in various centers in the United States.

2. Part 2 examinations are held once yearly, usually in one center, immediately preceding the meeting of the American Academy of Orthopaedic Surgeons.

3. The locations and dates of coming examinations are announced in THE JOURNAL of the American Medical Association and the *Journal of Bone and Joint Surgery*.

CERTIFICATION

1. Applicants who successfully pass part 1 examinations will receive no certificate but will be notified by letter by the secretary.

2. Applicants who successfully pass part 2 examinations receive a certificate of the board, which states that they have been found qualified to practice the specialty of orthopedic surgery in those fields in which they have been trained and examined.

3. Candidates obtaining certification without training and examination in children's orthopedic surgery may subsequently add certification in children's orthopedic surgery by completing a minimum of one year of approved resident orthopedic training in children's orthopedic surgery and successfully passing examination in that field. A practice period of one year is required following completion of resident training, prior to examination for additional certification.

APPROVED RESIDENCIES

1. In the United States, resident training must be taken in institutions approved for resident training in orthopedic surgery by the Council on Medical Education and Hospitals of the American Medical Association. All approved institutions are listed yearly in the Internship and Residency Number of THE JOURNAL. Lists may be obtained from the American Medical Association and are not obtainable from the board.

2. The integral parts of approved residencies are designated in lists by the following symbols: A—adult orthopedic surgery; C—children's orthopedic surgery; F—fracture surgery; and S—basic science training. Approved lengths of training in institutions is also designated.

3. Candidates electing an additional year of training in adult orthopedic surgery and fracture surgery in lieu of a year in children's orthopedic surgery may satisfy requirements by continuing their training beyond the designated approved length of time in institutions approved for adult orthopedic surgery or adult orthopedic surgery and fractures.

4. Credit for resident training is not retroactive. Candidates must receive resident training in institutions during periods that such institutions are on the approved list. If candidates are in training at institutions at the time that such institutions become approved, resident training credit may be granted from the start of the training period provided that the program is judged to have been satisfactory.

5. Candidates in resident training, or possessing signed contracts for future resident training in institutions which become disapproved, either in whole or part, receive resident training credit for the entire period during which their contracts are in force.

6. The term "fellow" is considered synonymous with "resident" when the position occupied and the work performed is equal in all functions. Fellowships in institutions having residents, in which training and responsibilities are not equal, are not credited as resident training.

7. Institutions approved for resident training in orthopedic surgery by the Council on Medical Education and Hospitals of the American Medical Association may, with prior acceptance by the American Board of Orthopaedic Surgery and notification to the Council, utilize the training facilities of institutions not individually approved for resident training by the aforementioned Council, provided that: (*a*) the training supplements services in the same categories in which the institution responsible for training is approved by the Council, (*b*) the resident spends at least half of the minimum required time in each category of training in institutions approved by the Council.

8. Foreign residencies must satisfy the American Board of Orthopaedic Surgery.

9. Application for approval of the training facilities of any institution must be made to the Council on Medical Education and Hospitals of the American Medical Association, and inspection of such facilities is made by representatives of the Council. Final approval is a joint function of the Council and the American Board of Orthopaedic Surgery.

REQUIREMENTS OF RESIDENT ORTHOPEDIC TRAINING

1. Institutions approved for full three year programs including all parts of the training requirements may integrate all parts so that they are given concurrently.

2. Institutions now approved for less than three years of orthopedic resident training should arrange with other approved institutions to provide complete three year programs for all residents.

3. The minimum requirements of resident orthopedic training are as follows: (*a*) one year of training in adult orthopedic surgery, (*b*) six months of training in the basic sciences, (*c*) six months of training in fracture surgery, and (*d*) one year of training in children's orthopedic surgery or, if elected, an additional year of training in adult orthopedic surgery and fracture training in place of training in children's orthopedic surgery.

4. Candidates who elect an additional year of training in adult orthopedic and fracture surgery instead of a year in children's orthopedic surgery may satisfy the requirements by taking the additional year of training in adult orthopedic surgery or six months of adult orthopedic surgery and six month of fracture surgery, but may not take the entire year of training in fracture surgery.

5. Training in adult and children's orthopedic surgery mus include observation and first hand experience in diagnosis, treatment, operative and postoperative care of orthopedic problems

6. Training in fracture surgery must include observation an first hand experience in diagnosis, treatment, operative and postoperative care of recent and old fractures.

7. Training in the basic sciences must instill a sound knowledge of anatomy, pathology, physiology, bacteriology, an biochemistry as these basic sciences apply to orthopedic surgery

8. Candidates may complete the training requirements b training in several approved institutions provided that all th aforementioned minimum requirements are satisfied on approve services.

9. *No training period of less than six consecutive* months i one institution may be credited toward resident training requirements, except a few short courses on the board's approved lis and recognized supplementary services of approved institutions

10. *Candidates in resident training may not engage* in privat practice.

11. Candidates in resident orthopedic training must receiv their training in institutions and may not receive credit for tim spent assisting in private office practice, which is considered a preceptorship training.

REQUIREMENTS OF PRECEPTORSHIP TRAINING

1. The preceptor must possess certification by the American Board of Orthopaedic Surgery.

2. The practice of the preceptor must be extensive enough to give the candidate experience in all phases of orthopedic practice.

3. The preceptor must devote special periods of time each week, outside of the routine hours employed in hospitals and office practice, to assist the candidate with organized courses of study similar to those received during resident training.

4. If facilities and instruction in the related basic sciences are not available, the candidate must spend a minimum of six months as a student in an institution approved for basic science training in orthopedic surgery.

5. The candidate in preceptorship training must spend six months in an institution approved for basic science training in orthopedic surgery. No credit for children's training will be allowed unless the preceptor is on the active staff of an institution approved by the Council for resident training in children's orthopedic surgery. The candidate must train as a full-time assistant to the preceptor and may not maintain a separate office or engage in individual practice.

6. The minimum training period in orthopedic surgery under the preceptorship program is five years in addition to the one year of resident training in general surgery or its substitute, after which time the candidate may file application for part 1 examinations.

7. The minimum practice period required for candidates trained under the preceptorship program is five years, after which time the candidate may file application for part 2 examinations. This makes a minimum total of 10 years from the start of orthopedic training to eligibility for part 2 examinations.

8. The practice period may be satisfied in individual private practice or in assistantship or partnership.

9. Candidates who combine preceptorship training with approved resident training receive credit for the preceptorship portion of their training only if it totals a minimum of two years. Two years of preceptorship training are credited as the equivalent of one year of resident training. The practice period requirement is likewise evaluated so that three years of practice are required if the candidate submits two years of preceptorship and two years of resident training, and four years of practice are required if four years of preceptorship and one year of resident training are submitted.

SEQUENCE OF EXAMINATIONS AND PRACTICE REQUIREMENTS

1. No person may take part 2 examinations until after successful completion of part 1 examinations.

2. Successful completion of part 1 examinations in no way obligates the board to declare a candidate eligible for part 2 examinations.

3. Regardless of how extensive or prolonged a practice a candidate may have had prior to completing the training requirements, such time may not be credited toward practice requirements. All practice requirements must be satisfied subsequent to completion of training requirements.

4. Candidates may not be admitted to examinations on the basis of prolonged practice but must qualify on the basis of formal training in one of the categories previously detailed.

PRACTICE REQUIREMENTS

1. Candidates must maintain high ethical and professional standards.

2. Candidates must strive to increase their scientific knowledge.

3. Candidates must limit their practice to orthopedic surgery.

4. Candidates who have had no approved training in children's orthopedic surgery must confine their practice to fracture and adult orthopedic surgery.

5. Candidates trained in resident orthopedic training are required to complete a minimum of two years of orthopedic practice subsequent to the completion of their formal training before becoming eligible for part 2 examinations.

6. Candidates in private or institutional practice must spend a minimum of 14 months in one locality immediately prior to application in order that practice may be properly evaluated.

7. Candidates employed full time in institutions may satisfy practice requirements by serving a minimum of two years, but minimum requirements may not be satisfied by mixing full-time institutional work with preceding or subsequent time in private practice.

8. Candidates trained by preceptorship are required to complete a minimum of five years of orthopedic practice before becoming eligible for part 2 examinations. The practice period may be independent of the preceptor.

METHOD OF EXAMINATION

1. Part 1 examinations consist of a written examination and oral examinations. Material covered includes fundamental surgical principles, elementary fracture and orthopedic procedures, history-taking, and physical examinations as well as those parts of anatomy, pathology, physiology, and biochemistry related to orthopedic surgery. The oral examinations consist of five parts: (*a*) anatomy, (*b*) pathology, (*c*) physiology and biochemistry, (*d*) surgery, and (*e*) fractures and orthopedic surgery.

2. Part 2 examinations consist of a written examination and oral examinations. Material covered includes advanced work in all phases of orthopedic surgery. The oral examinations consist of five parts: (*a*) anatomy, (*b*) pathology, (*c*) children's orthopedic surgery, (*d*) fractures, and (*e*) adult orthopedic surgery.

3. Candidates who have not had approved training in children's orthopedic surgery will not be examined in that branch of orthopedic surgery.

4. Candidates are notified by letter as to whether they passed or failed in the examinations. No information regarding results is available until such letters are mailed.

5. Results of integral parts of examinations are not available to either candidates or diplomates of the board.

6. Candidates who have passed part 1 examinations are required to take part 2 examinations within a 10 year subsequent period. If there is a lapse of more than 10 years, candidates must repeat part 1 examinations and must then become eligible by the requirements then in force.

REEXAMINATIONS

1. Applicants who fail to pass part 1 or part 2 examinations may be reexamined a second or third time in each part, but must pay the prescribed examination fee each time of reexamination.

2. Applicants who fail to appear for second and, if necessary, third reexaminations within three years after first failure must submit new applications with the appropriate fees.

3. After three successive failures in part 1 or part 2 examinations, applicants must present evidence of additional orthopedic training satisfactory to the board before submitting new applications.

MILITARY SERVICE

1. Medical officers who have elected service in the military forces as their life careers compete for certification on the same basis as do physicians in civilian practice.

2. Physicians who served for a minimum of one year in the military forces during the war years, between Jan. 1, 1941, and July 1, 1946, are granted a bonus of one year of practice credit, provided that the same time is not used for resident training credit.

3. Applicants who served in military hospitals whose service is judged by the board to have been equal to that of approved resident orthopedic training may be granted a maximum credit of one year of resident orthopedic training. Applicants requesting such credit must submit completed "Professional Training Records."

4. No applicant may be granted more than one year of resident training credit and one year of practice credit for military service during the war years.

5. Medical officers assigned to civilian institutions on the approved list for resident orthopedic training receive the same credit as do civilian candidates.

6. Medical officers who have elected service in the military forces as their life careers must satisfy the practice requirements by military assignments in which their duties are limited to the practice of orthopedic surgery.

RECORDS OF SURGICAL CASES AND INSPECTIONS

1. Records of a specified number of consecutive surgical cases may be requested by the board in order to evaluate properly the work of an applicant.

2. A representative of the board may visit a community in order to evaluate properly the work of an applicant.

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GENERAL REQUIREMENTS

The following general qualifications of candidates for examination are required by the board:

1. A candidate must be a citizen of the United States or the Dominion of Canada.

   (a) A candidate must have been a graduate for five years or more of a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association.

   (b) A candidate must be of known good moral character and be ethical in his professional relationships.

   (c) A candidate trained in a foreign country must be able to give proof of medical and graduate training comparable to the requirements of the board.

   (d) A candidate from the United States or the Dominion of Canada must be a member of the American Medical Association or of the Canadian Medical Association respectively or other such medical societies of equal standing as are recognized by the Council on Medical Education and Hospitals of the American Medical Association.

2. Candidates from foreign countries who have received their training in otolaryngology in the United States are eligible for examination at the discretion of the board, providing they show proof that they are permanent residents and citizens of their respective foreign countries and provided they meet the general academic requirements of the board.

SPECIAL REQUIREMENTS

1. A candidate must have had a general internship of at least one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association.

2. A candidate must be proficient in the applied basic sciences, fundamental to the intelligent practice of otolaryngology. These include anatomy of the ear, nose, and throat, neck chest, esophagus and nervous system, gross pathology and histopathology, bacteriology, physiology, didactic otolaryngology and the general fundamentals of surgery. (This requirement may be fulfilled in a residency or fellowship service or in an approved organized postgraduate course.)

3. In addition to the general internship, the required clinical training in otolaryngology may have been acquired in any of the following ways:

   (a) A three years' approved residency or fellowship in otolaryngology approved by the Council on Medical Education and Hospitals of the American Medical Association.

   (b) A four years' approved residency or fellowship in otolaryngology and ophthalmology approved by the Council on Medical Education and Hospitals of the American Medical Association, provided one half of the training has been in otolaryngology.

   (c) A two years' approved residency or fellowship in otolaryngology or a three years' approved combined residency or fellowship in otolaryngology and ophthalmology, provided two years have been in otolaryngology and have been preceded by at least one year's approved residency training in surgery or medicine, or by an additional year in an approved internship.*

4. In exceptional circumstances certain candidates who cannot meet all of the above requirements may be accepted for examination on recommendation of the credentials committee, substantiated by action of the board.

5. At least one year must be spent in private, group, or institutional practice of otolaryngology after the period of special training. This requirement may be waived in cases of candidates of foreign countries who are permanent residents and citizens of their respective countries and who are returning there for the practice of otolaryngology. Should such a candidate pass the examination the certificate of the board will be withheld until the board has been furnished evidence that the candidate has spent one year in the practice of otolaryngology.

6. A candidate may be qualified for examination, at the discretion of the American Board of Otolaryngology, if in addition to the General Requirements and Special Requirements, no. 1 and 2, he has limited his practice to otolaryngology for seven years in association with a hospital staff approved by the Council on Medical Education and Hospitals of the American Medical Association.

7. A physician who limits himself exclusively to the practice of peroral endoscopy may be granted limited certification in this field by the American Board of Otolaryngology irrespective of certification in any other specialty. Limited certification will be granted provided the candidate has spent not less than one year of training in a hospital approved for endoscopic teaching and has passed successfully examinations in the basic sciences as they pertain to this field, and didactic and clinical examinations covering diseases of the larynx, pharynx, neck, esophagus, stomach, tracheobronchial tree, lungs and mediastinum and certain aspects of cardiovascular disease as they pertain to peroral endoscopy. A limited certificate by the American Board of Otolaryngology will not be issued to physicians who have been certified in a specialty that employs peroral endoscopy in diagnosis and/or

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* See Standards for Residencies in Otolaryngology published by the merican Medical Association.

treatment because his major interest is in that specialty, not in endoscopy.

All candidates must comply with current board regulations, regardless of the time of filing application.

APPLICATION AND FEES

1. Application must be made in duplicate on special blanks procured from the secretary. The completed application blanks must be returned to the secretary, together with the other required credentials, at least 120 days in advance of the examination at which the candidate desires to appear.

2. The applications must be accompanied by two small photographs of the candidate, together with verification of the period of enrollment from the institutions where training in otolaryngology was obtained, and the names of two or more otolaryngologists, preferably diplomates of the board, from the vicinity of the candidate's place of residency, to be used as references.

3. The fee for the examination is $150. Of this sum $75 must accompany the application, of which $50 shall be returned if candidate is not accepted for examination. No application will be acted on until the $75 application fee is received. The remaining $75 of the total examination fee of $150 must be paid to the secretary on notification that the candidate has been accepted. A reexamination fee of $75 is required of candidates conditioned in one or more subjects.

4. The fees have been carefully computed on a basis of cost of examinations and are used entirely for administrative expenses. Examiners serve without compensation other than actual expense.

5. The application remains valid for three years. An applicant must appear for examination within this time or forfeit the fee.

6. Candidates whose credentials have been found satisfactory and who meet the requirements of the board will be notified 90 days prior to the date of examination. The number of candidates who can be admitted to any one examination is limited. Due to a large number of applications on file, delay in assignment for examination may be inevitable. Appointments will be given in the order applications are accepted and on payment of the balance of the examination fee.

7. The board, acting as a committee of the whole, reserves the right to reject an applicant for any reason deemed advisable and without stating the same, and the action of the board shall be final.

EXAMINATION

Examinations will be held at such time and place as the judgment of the board may dictate. Advance notice of examinations will be given in THE JOURNAL of the American Medical Association and the several special journals devoted to otolaryngology. Insofar as is possible these will be held biannually at, or near, the time and place of meeting of the American Medical Association, or special societies, and of the American Academy of Ophthalmology and Otolaryngology. The examinations cover from two to four days.

Scope.—This examination encompasses all phases of otolaryngology and peroral endoscopy, including maxillofacial surgery, and surgery of the neck, excluding the thyroid.

The type of examination is as follows:

1. Clinical, covering the actual handling of patients, including history-taking, physical and functional examinations, the use of laboratory and x-ray findings, and a discussion of differential diagnosis.

2. Didactic, oral examinations covering all phases of otolaryngology.

3. Gross and microscopic pathology.

4. A written examination may be included when the board deems this advisable.

REEXAMINATION

A candidate who is conditioned in examination may be admitted to a subsequent examination after one year and within the three year period dating from his application on payment of an additional fee of $75, and 120 days' notice of intention to appear is required.

AMERICAN BOARD OF PATHOLOGY

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GENERAL REQUIREMENTS

1. Satisfactory moral and ethical standing in the profession.

2. License to practice medicine or a certificate of the National Board of Medical Examiners.

3. The applicant must devote his time primarily and principally to the practice of pathology.

PROFESSIONAL EDUCATION

1. Graduation from a medical school in the United States approved by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a medical school in other countries acceptable to the board.

SPECIAL TRAINING AND EXPERIENCE

1. The board admits candidates to examinations who are otherwise eligible and who have had either of two following types of training and experience.

(*a*) After five years, if four of the five years have been in institutions approved by the Council on Medical Education and Hospitals of the American Medical Association or by the board; or

(*b*) After 11 years if none of the training and experience has been in institutions so approved.

2. The specific requirements for those acceptable after five years are as follows:

(*a*) Pathological anatomy only.

(1) Four years of supervised study and training in an institution approved for residency training in pathological anatomy by the Council on Medical Education and Hospitals of the American Medical Association or by the board. It is immaterial whether the candidate holds the title of resident or fellow or assistant. Candidates may, at their own election, substitute not to exceed 12 months of a straight or rotating clinical internship or a fellowship or instructorship in any of the preclinical departments of a university for one of the four years. In addition, time, not to exceed 12 months, spent in a department of pathology of an approved school of medicine after the completion of the second year of undergraduate study may be counted for full credit toward the four years.

(2) One additional year, which may be a continuation of the preceding or may be independent practice of pathological anatomy in a hospital approved by the American Medical Association or other institutions acceptable to the board.

(*b*) Clinical pathology only.

(1) Four years of supervised study and training in an institution approved for residency training in clinical pathology by the Council on Medical Education and Hospitals of the American Medical Association or by the board. It is immaterial whether the candidate holds the title of resident or fellow or assistant. Candidates may, at their own election, substitute not to exceed 12 months of a straight or rotating clinical internship or a fellowship or instructorship in any of the preclinical departments of a university, for one of the four years. Candidates holding also a master's or doctor's degree in a special field of clinical pathology (bacteriology, serology, chemistry, parasitology, or hematology) may obtain time credit for not more than 12 to 24 months toward the four years for this work,

regardless of whether it was taken before or after the medical degree. The evaluation of time credit will depend on how much of the broad field of clinical pathology was covered in the graduate work.

(2) One additional year, which may be a continuation of the *preceding or may be independent practice of clinical pathology* in a hospital approved by the American Medical Association or other institutions acceptable to the board.

(*c*) Pathological anatomy and clinical pathology.

(1) Four years of supervised study and training divided as follows: (*a*) two years of supervised study and training in pathological anatomy as outlined in the preceding paragraph 2-(*a*)-(1), (*b*) *two years of supervised study and training in clinical pathology* as outlined in the preceding paragraph 2-(*b*)-(1). Candidates declared eligible before July 1, 1953, may at their own election substitute one year (12 months) of a straight or rotating clinical internship for one year of this special training in clinical pathology. After July 1, 1953, all candidates applying for both pathological anatomy and clinical pathology will be required to have two years of supervised training in clinical pathology.

(2) One additional year, which may be a continuation of the preceding or may be independent practice of both pathological anatomy and clinical pathology in a hospital approved by the American Medical Association or other institutions acceptable to the board. After July 1, 1953, candidates who elect to claim credit for one year for a clinical internship must take this fifth year as supervised study and training in clinical pathology in institutions approved for residency training in clinical pathology by the Council on Medical Education and Hospitals of the American Medical Association or by the board. Candidates declared eligible after July 1, 1953, who do not take a clinical internship, may, after four years of training as outlined in 2-(1)-(*a*) and (*b*), spend the fifth year in independent practice in an institution or laboratory acceptable to the board.

NOTE: As outlined in the preceding paragraphs, the total time requirements of the board are unchanged after July 1, 1953, namely, five years of study or practice after graduation from medical school, with exceptions noted in sections 2-(*a*)-(1) and 2-(*b*)-(1).

3. The specific requirements for those acceptable after 11 years are as follows: (*a*) The practice of pathology under circumstances acceptable to the board for a period of not less than 11 years. At the election of the candidates, a period not to exceed one year of straight or rotating clinical internship may be substituted for one of the 11 years. For those candidates in this category who have had some special study and training in pathologic anatomy or clinical pathology acceptable under paragraphs 2-(*a*), (*b*), or (*c*), double time credit will be allowed. Thus, if a person has two years of acceptable supervised study and training, only seven years of practice are required.

SPECIAL QUALIFICATIONS

1. Prior to Dec. 31, 1947, the board at its discretion certified candidates without examination, if the following conditions were met as of July 1, 1939: (*a*) that the candidate has been for a period of five years of professorial rank in a department of pathology in an approved medical school; or (*b*) that the candidate had been practicing pathology for 10 years in a senior position in a hospital having an adequate department of pathology, approved by the Council on Medical Education and Hospitals of the American Medical Association or in an institution acceptable to the board.

CREDIT FOR MILITARY SERVICE

Credit may be allowed for training and experience in pathology in the federal services during the period July 1, 1940, to June 30, 1947. This credit for training or experience or both is given on an individual basis and will depend on the opportunity the applicant has had, as indicated by his or her medical service record in the specialty of pathology.

After July 1, 1947, credit for those military services will be given on the same basis as it is in civilian institutions, except that the rule in the preceding paragraph will not apply to reserve officers who continue on active duty or are called to active duty after that date.

SPECIAL FIELDS OF PATHOLOGY, CLINICAL CHEMISTRY, CLINICAL MICROBIOLOGY, HEMATOLOGY, AND NEUROPATHOLOGY (IN FORCE AFTER JULY 1, 1954)

The trustees of the American Board of Pathology have adopted the following requirements for certification in special fields of *pathology, effective July 1, 1954.*

Candidates who have met all general requirements and have had special training and experience that is acceptable to the board in a special field of pathological anatomy or clinica pathology may apply to the board for certification in that specia field. The board, at its discretion, may approve this applicatio and after the candidate has successfully passed a prescribe examination or has fulfilled certain *special qualifications* (se below, section D), will issue a certificate designating the specia field.

A. General Qualifications:

1. Satisfactory moral and ethical standing in the pr fession.
2. License to practice medicine or a certificate of tl National Board of Medical Examiners.
3. The applicant must devote his time primarily a principally to the practice of pathology or the speci field of pathology in which he is requesting certific tion.

B. Professional Education:

1. Graduation from a medical school in the United Stat approved by the Council on Medical Education a Hospitals of the American Medical Association graduation from a medical school in other countr acceptable to the board.

C. Special Training and Experience:

The board admits candidates to examination in spec *fields of pathology who are otherwise eligible* and w have had either of the following types of training:

1. Applicants already holding a certificate of the board clinical pathology or the combined certificate pathological anatomy and clinical pathology (qualification in clinical chemistry, clinical microbi ogy, and hematology), or in pathological anato (for qualification in neuropathology)—two additio years of supervised training in the special field their choice *in institutions* approved by the Cour on Medical Education and Hospitals of the Ameri Medical Association or by the board.
2. Applicants not holding a certificate in pathologi anatomy or clinical pathology—five years of train in the special field of their choice, provided four the five years have been in institutions approved the Council on Medical Education and Hospitals the American Medical Association or by the boa Candidates may, at their own *election*, substitute to exceed 12 months of a straight or rotating clini internship or a fellowship or instructorship in any the preclinical departments of a university for one *the four years.* The fifth year may be a continuati of supervised training or may be independent pr tice of the particular specialty in a hospital appro by the American Medical Association or in other stitutions acceptable to the board.

D. Special Qualifications—Certification Without Examinatio

Prior to Jan. 1, 1960, the board at its discretion m certify candidates without examination if the followi conditions have been met as of Jan. 1, 1955:

1. That the candidate has been for a period of five ye of professorial rank in the special field of his choi and in an approved medical school; or
2. That the candidate has been practicing his special for 10 years in a senior position in a hospital havi an adequate department in the special field, approv by the Council on Medical Education and Hospit of the American Medical Association, or in an ins tution acceptable to the board.

APPLICATION BLANK AND FEE

Application must be made on the special form that may be procured from the secretary and forwarded with other required credentials and the application fee. An application cannot be given consideration by the board unless it is accompanied by the application fee.

The application or examination fee for candidates is $60. If the candidate fails in his examination he will be admitted to a second examination after one year. The applicant must pay an additional fee of $40 before a second examination will be given.

The application fee of $60 has been determined after careful consideration and is based on actual estimates of the expenses of examination and administration. None of the board members receive any compensation for their services except actual expenses incurred.

If the applicant, for any reason, is deemed ineligible for examination by the board, his fee will be returned; however, the application fee is not returnable after the candidate has officially been accepted for examination and notified to report for the examination.

EXAMINATIONS

Written and oral examinations will be held at the discretion of the board at or near the time and place of national medical meetings. If a number of applications from any region of the country are received, an examination in conjunction with a national medical meeting in that section will be arranged so that the financial outlay of the applicant in meeting the examiners will be as small as possible.

The examinations are to be based on the broad principles of pathology with emphasis on diagnosis, interpretation and technique. The applicant may apply for certification in either pathological anatomy or clinical pathology or both.

The examinations in pathological anatomy consist of a written test, an oral examination on gross pathology, and a practical examination in microscopic pathology. The examination in clinical pathology consists of a written test and an oral and practical examination in the six phases of clinical pathology: bacteriology, hematology, clinical chemistry, parasitology, serology, and clinical microscopy.

DEFINITIONS

1. Pathological anatomy is that branch of pathology that deals with the morphological aspects of disease, recognition being given that that definition covers two phases of pathology: (*a*) the applied phase with special attention to the description and diagnosis of gross and microscopic specimens, (*b*) the academic phases of teaching and general morphological diagnosis.

2. Clinical pathology is that branch of pathology that deals with bacteriology, immunology, clinical chemistry, parasitology, hematology, endocrinology, clinical microscopy, and the application of the physical and biological sciences to the diagnosis, prognosis, and treatment of disease.

BOARD NOT AN EDUCATIONAL INSTITUTION

The board is in no sense an educational institution, and the certificates of the board are not to be considered degrees. Therefore, the certificate does not confer on any person legal qualifications, privileges, or license to practice medicine or the specialty of pathology. The board does not purport in any way to interfere with or limit the professional activities of any licensed physician. Its chief aim is to standardize the qualifications for the specialty of pathology and to issue certificates to those voluntarily complying with the requirements of the board.

CRITERIA FOR APPROVAL OF INSTITUTIONS FOR TRAINING IN PATHOLOGY

In Sections C-2-a, C-2-b, and C-2-c of the General Requirements, it is stated that candidates must have certain periods of supervised study and training. The American Board of Pathology, in cooperation with the Council on Medical Education and Hospitals of the American Medical Association, certifies hospitals in the United States as satisfactory for this supervised study and training. Lists of these hospitals are published in the Internship and Residency Number of The Journal of the American Medical Association each year. In addition, the American Board of Pathology recognizes certain hospitals outside the United States and certain laboratories not connected with hospitals in the United States. Inquiries concerning these should be directed to the secretary of the board.

The general criteria for approval of hospitals and laboratories are both qualitative and quantitative. On the score of quality, consideration is given to the qualifications of the director of laboratories and in the associates and assistants, the supervision of work of the person in training, the excellence of the educational program, and the exactness and completeness of the laboratory work performed. On the score of quantity, consideration is given to the volume and distribution of laboratory work, both in absolute numbers and in relation to the size of the hospital, to the diversity and completeness of tests performed, to the size and equipment of the laboratory, and to the number of professional and nonprofessional personnel in relation to the volume of work.

In general, the qualitative standards will determine whether or not a hospital or laboratory is approved, and the quantitative standards will determine whether the approval is for one, two, three, or four years of credit toward the requirements of the board.

In evaluation of applications the board takes into consideration the following criteria:

1. Director of laboratories or pathologist:
    - (*a*) It is required that the responsible head of the laboratory hold the certificate of the American Board of Pathology in the subject for which the hospital is approved, or be eligible for certification, and that he or she spend full time in the hospital. Full time is not interpreted in terms of hours, but rather that the director have no obligation outside the one approved hospital except in a university department of pathology in which he and the residents have an opportunity to participate in the educational program;
    - (*b*) In special instances, the equivalent of full time by two or more qualified persons will be accepted and one person need not spend the entire working day in the laboratory;
    - (*c*) In special instances, two or more hospitals will be approved as a unit with a single full-time director of laboratories if it is apparent that a satisfactory training program can be conducted;
    - (*d*) In hospitals with over 350 beds, it is expected that the professional staff, in addition to the pathologist, will include one or more persons with special training and qualifications in the subspecialties of clinical pathology.
2. Technicians:

    There are no absolute criteria, but it is expected that the number of technicians will be proportional to the volume of laboratory work and that, insofar as possible, the technicians will hold the certificate of the Registry of Medical Technologists of the American Society of Clinical Pathologists.
3. Floor space of laboratory:

    In general, it is believed that the size of the laboratory should be related to the size of the hospital and the volume of laboratory work. A minimal ratio is 4 sq. ft. of space in the laboratory, including morgue and autopsy room, for each bed in the hospital.
4. Equipment for the laboratory:

    The variety and completeness of laboratory tests performed depends on the size of the hospital. In all hospitals there should be facilities for the more common tests in clinical pathology, for study of surgical specimens, and for performance of autopsies. In larger hospitals, the variety of tests performed should be larger, and in hospitals with over 500 beds all recognized laboratory procedures should be available for study and treatment of the patients.

5. Autopsy percentage:

   No institution with a percentage of less than 15 will be approved, and those institutions with percentages between 15 and 40 will be given special scrutiny.

6. Examination of surgical specimens:

   All surgical specimens should be sent to the laboratory for gross examination, and microscopic examinations should be made unless there are general or special reasons not to do so.

7. Indices:

   There should be indices according to the names of the patients and the diagnoses of all surgical and autopsy material. *Indices of clinical pathology are left to the discretion of the hospital.*

8. Museum:

   There should be available fixed anatomic and pathological specimens for study by the staff in proportion to the size of the hospital. Property filed and indexed color photographs may in part be substituted for museum specimens.

9. Library:

   A reasonably complete library of modern books and recent unbound and bound journals should be available to the hospital, and the more commonly used books and journals should be on hand in the laboratory.

10. Education program:

    The work of the person in training should be supervised. Conferences, seminars, journal clubs, and demonstrations should be conducted as frequently as the volume of material and the size of the staff justifies. A clinicopathological conference must be held at least every two weeks.

11. Volume of laboratory work:

    (*a*) As indicated in the following categories, no hospitals with less than 75 autopsies, 1,000 surgical specimens, and 25,000 tests in clinical pathology annually will be approved (Category D), except as outlined in the following paragraphs. *It is the belief of the board that less material than this is inadequate for the training of a pathologist.*

    (*b*) In the field of clinical pathology, there should be a reasonable diversification of tests, and in each category there should be sufficient absolute volume to provide training and experience. There are no absolute criteria, but special scrutiny will be given to a hospital in which there is not a reasonable diversification and variety.

    (*c*) In the field of pathological anatomy, a deficiency in either autopsies or surgical specimens may be made up by an excess of the other, if the deficiency does not exceed 20% of the minimum required in the ratio of one autopsy to 75 surgical specimens. *Thus in a hospital approved for one year in pathological anatomy and clinical pathology, the minimums are 75 autopsies and 1,000 surgical specimens. If a hospital has 2,500 surgical specimens, it is acceptable if there are only 60 autopsies.*

If a hospital has met these minimal qualitative and quantitative standards, it will then, on the basis of the following quantitative standards, be approved for one, two, three, or four years of training in pathological anatomy, or clinical pathology, or both, or some special field as shown for the number of residents indicated.

CATEGORY A. In both pathological anatomy and clinical pathology for four years (as required of all candidates seeking certification in both fields who are examined after July 1, 1952).

Minimum: 150 autopsies, 1,750 surgical specimens, and 65,000 tests in clinical pathology for four residents. Additional resident for each 50 autopsies or 500 surgical specimens, or 20,000 tests in clinical pathology.

CATEGORY B. In both pathological anatomy and clinical pathology for three years. This meets all requirements of the board for supervised training until July 1, 1952. Candidates examined after that date who seek certification in both subjects must take an additional year of supervised training in clinical pathology or pathological anatomy in another hospital that is approved for the deficiency of training required.

Minimum: 125 autopsies, 1,500 surgical specimens, and 50,000 tests in clinical pathology for three residents. Additional resident for each 50 autopsies, 500 surgical specimens, or 20,000 tests in clinical pathology.

CATEGORY C. In both pathological anatomy and clinical pathology for two years. Candidates taking two years in these institutions must have an additional year (two years after July 1, 1952) in an institution in category A, B, or D.

Minimum: 100 autopsies, 1,250 surgical specimens, and 40,000 tests in clinical pathology for two residents. *Additional resident* for each 50 autopsies, or 500 surgical specimens, or 20,000 tests in clinical pathology.

CATEGORY D. In both pathological anatomy and clinical pathology for one year. Candidates taking training in these institutions must have an additional two years (three years after July 1, 1952) in institutions that are approved for the deficiency of training required.

Minimum: 75 autopsies, 1,000 surgical specimens, and 25,000 tests in clinical pathology for one resident. Additional resident for each 50 autopsies, or 500 surgical specimens, or 20,000 tests in clinical pathology.

CATEGORY E. In pathological anatomy only, for three or more years. Candidates taking all training in these institutions will not be eligible for certification in clinical pathology unless an additional year (two years after July 1, 1952) is taken in clinical pathology in institutions that are approved for the deficiency of training required.

Minimum: 175 autopsies and 1,500 surgical specimens for three residents. Additional resident for each 50 autopsies or 500 surgical specimens.

CATEGORY F. In pathological anatomy only, for two years. Candidates taking training in these institutions will not be eligible for certification in clinical pathology unless they take one additional year full time in clinical pathology (two years after July 1, 1952) in institutions that are approved for the deficiency of training required, and will be eligible in pathological anatomy only if another year is taken in another institution that is approved for one or more years in pathological anatomy.

Minimum: 125 autopsies and 1,250 surgical specimens for two residents. Additional resident for each 50 autopsies or 500 surgical specimens.

CATEGORY G. In pathological anatomy only, for one year. Candidates training in these institutions will not be eligible in both pathological anatomy and clinical pathology unless they take an additional year in pathological anatomy and an additional year (two years after July 1, 1952) in institutions that are approved for these periods of training. Candidates seeking certification in pathological anatomy only must study an additional two years in institutions that are approved for that period of training.

Minimum: 75 autopsies and 1,000 surgical specimens for one resident. Additional resident for each 50 autopsies or 500 surgical specimens.

CATEGORY H. For postmortem part of pathological anatomy for two years. Credit is never allowed for more than two years. Candidates taking training in these institutions may pursue further training as follows: 1. For pathological anatomy only. An additional year in an institution in Category A, B, C, E, F, or G with assignment to surgical pathology principally. 2. For pathological anatomy and clinical pathology. An additional year (two years after July 1, 1952) in an institution in Category A, B, C, L, M, or N with assignment to clinical pathology and one-half year assigned to surgical pathology principally, in an institution in Category A, B, C, or J.

Minimum: 125 autopsies for two residents. An additional resident for each 60 autopsies.

CATEGORY I. For postmortem part of pathological anatomy for one year. Candidates taking training in these institutions may pursue further training as follows: 1. For pathological anatomy only. An additional two years in an institution in Category A, B, C, E, F, or G with general assignments. 2. For pathological anatomy and clinical pathology. An additional year (two years after July 1, 1952) in an institution in Category A, B, C, L, M, or N with assignment to clinical pathology and one year to an institution in Category A, B, C, E, F, or G.

Minimum: 75 autopsies for one resident.

Category J. Surgical pathology part of pathological anatomy for one year. Credit is never allowed for more than one year and the director of the laboratory must hold the certificate of the American Board of Pathology in pathological anatomy or be eligible for certification. Candidates training in these institutions may pursue further training as follows: 1. For pathological anatomy only. An additional two years in an institution in Category H or in an institution of Category A, B, or C with assignment to postmortem pathology only. 2. For pathological anatomy and clinical pathology. An additional year (two years after July 1, 1952) in an institution in Category A, B, C, L, M, or N with assignment to clinical pathology full time, and an additional year to an institution in Category A, B, D, E, F, G, or H with assignment to postmortem pathology full time.

Minimum: 2,000 surgical specimens for one resident. An additional resident for each 1,000 surgical specimens.

Category K. Special pathology as part of pathological anatomy. Credit for not to exceed one-fourth the time credit (one year if seeking certification in pathological anatomy only, six months if seeking both pathological anatomy and clinical pathology) of candidates applying in pathological anatomy may be taken in special laboratories with limited activities such as neuropathology, orthopedic pathology, ophthalmic pathology, etc. The candidate who receives credit in this category may, on request, have the field of special pathology designated on the certificate of the board.

Category L. Clinical pathology for three or more years. Candidates taking three years of training in these institutions will not be eligible for pathological anatomy unless they take an additional two years in institutions approved for pathological anatomy.

Minimum: 100,000 tests in clinical pathology for three residents. Additional resident for each 50,000 tests.

Category M. Clinical pathology for two years. Candidates taking two years' training in these institutions must take the same additional training as in Category L to be eligible for pathological anatomy also. To be eligible for clinical pathology only, an additional year of clinical pathology must be taken in an approved institution.

Minimum: 75,000 tests in clinical pathology for two residents. An additional resident for each 50,000 tests.

Category N. Clinical pathology for one year. Candidates taking training in those institutions must take an additional two years in an institution in Category A, B, C, L, or M assigned to clinical pathology for eligibility in clinical pathology only. To be eligible in pathological anatomy and clinical pathology, an additional two years in approved institutions is required.

Minimum: 50,000 tests in clinical pathology for one resident.

Category O. Special clinical pathology as part of clinical pathology. Candidates applying for clinical pathology only may receive credit for not in excess of one-quarter of the training period (one year if seeking certification in clinical pathology only, six months if seeking both pathological anatomy and clinical pathology) for work in a special field of clinical pathology, such as bacteriology, serology, etc. Under these circumstances, on request, the special field will be designated on the certificate of the board.

Category P. Research: residence in certain institutions in which full time is devoted to research with a direct application to the practice of pathological anatomy or clinical pathology may be accepted for credit not to exceed one-third the time requirement (20 months if no clinical internship, 16 months if a clinical internship was taken). The board encourages research and believes that all candidates should carry on investigation during their training in all institutions. Therefore, this category is only for those wishing to do full-time research.

AMERICAN BOARD OF PEDIATRICS

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REQUIREMENTS FOR CERTIFICATION [1]

All candidates for examination for certification must meet the following requirements:

1. Graduation from an approved medical school.

2. Hold a license to practice in the United States prior to issuance of a certificate except in those situations in which a license to practice is not required.

3. One year of rotating, pediatric, or other internship in an approved hospital.

4. Two years of specialized residency-type training in an approved pediatric center.

At least one year of the two years of required residency training must be a full-time medical pediatric inpatient residency or internship in an approved institution. The second year of required residency training may be met in the ways listed below, although the board recommends that whenever possible candidates complete the two years as regular residents.

(*a*) It is the fundamental concept of the American Board of Pediatrics that a residency training program should provide for properly organized progressive responsibility for the care of sick children. The board believes further that this purpose can be accomplished only through continuity of clinical experience under the supervision of staff physicians who are themselves responsible for the care of children on the service. The substitution of a formal course in a graduate or postgraduate school which does not carry the essential ingredient of responsibility for patient care is, in the opinion of the board, inconsistent with this principle. Accordingly, the board in the future will accept such courses as part of an approved residency program in pediatrics only in exceptional cases authorized by the board in advance of the same. The above provision will be considered to become effective on and after July 1, 1956.

In "exceptional cases," there are a small number of applicants for whom graduate school courses may be substituted for equivalent periods of residency training with benefit. These include certain physicians whose basic training may for one reason or another have been deficient or may have been gained such a long time in advance of completion of specialty training that graduate school training would be very helpful. In such cases, by prior arrangement, credit may be allowed for the same to a maximum of nine months.

(*b*) A maximum of three months' credit each is allowed for full-time residency type training in allied pediatric subjects such as pediatric allergy, pediatric psychiatry, pediatric pathology, pediatric radiology, newborn service, etc.

(*c*) A maximum of six months' credit is allowed for residency training in an approved contagious disease hospital.

5. A subsequent term of two years of specialized study or practice or a combination of the two. Credit for one year toward this requirement is allowed for medical military service regardless of the assignment. Credit in excess of one year may be

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* Deceased.

[1] To avoid misunderstanding, the board urges any candidate whose training is not clearly covered in these regulations to communicate with the office of the executive secretary. Whenever possible, this should be done before entering upon the appointment in question.

granted if the medical officer is engaged in full-time pediatrics, or may be prorated if a considerable proportion of time is spent in pediatrics. It must be noted, however, that the maximum credit that any candidate may receive toward the practice requirement for work done prior to the completion of residency training is one year.

Attention is invited to the fact that the primary duty of the resident must be the care of patients under supervision, if full credit in satisfaction of the residency training requirement is expected. Research residencies which involve little or no clinical training are creditable for only three months. Research residencies which include significant clinical training may be prorated to a total of six months for a year of service. Teaching fellowships may not be offered in lieu of residency appointments.

Both research residencies and teaching fellowships are, of course, entirely acceptable in satisfaction of the practice or further study requirement. Portions of a research residency not applicable for residency training credit may be carried over for practice credit.

Preceptorships are not accepted for credit toward the residency requirement, but are accepted toward the practice requirement.

The board defines service in a pediatric center as full time devoted to rounded experience in an approved hospital which includes responsibility for care of patients on ward and outpatient services, experience with newborn, including prematures, and both therapeutic and preventive pediatrics. It is expected that the service will include adequate graduate training in the basic medical sciences, as well as in the clinical, laboratory, and public health aspects of the specialty.

GRADUATES OF MEDICAL SCHOOLS IN CANADA

Graduates of approved medical schools in Canada and those who have received their internship and residency training in pediatrics in hospitals approved by the Royal College of Physicians and Surgeons of Canada will be eligible for examination for certification under the same regulations as those trained in the United States.

GRADUATES OF FOREIGN MEDICAL SCHOOLS

Citizens of the United States.—Citizens of the United States of America who are graduates of medical schools other than those in the United States and Canada will be processed for eligibility for examination for certification if they can meet all the following requirements:

1. They are graduates of a medical school recommended by the Council on Medical Education and Hospitals of the American Medical Association.
2. They hold a license to practice in the United States.
3. They can meet the internship and residency training requirements of the board as detailed above with the following provisions:
   (*a*) Internship and residency training must be served in hospitals approved by the board in the United States.
   (*b*) A maximum of the internship and one year of residency training may be allowed for such experience obtained in a small list of foreign hospitals recognized by the board. The other year of residency training must be served in a straight inpatient medical pediatric residency appointment in an approved hospital in the United States.

Citizens of the United States of America who are graduates of medical schools other than those in the United States and Canada, which are not recommended by the Council on Medical Education and Hospitals of the American Medical Association, may be accepted for examination for certification after they have passed successfully parts 1 and 2 of the examinations of the National Board of Medical Examiners, Inc., provided they meet the other requirements of the board as provided in the regulations governing such candidates. It should be noted that this regulation is permissive, not mandatory. Each application will be evaluated individually.

Citizens of Other Countries.—Properly qualified candidates who are permanent residents in and citizens of other countries and are licensed to practice there and who have fulfilled the residency training requirements listed above in the United States or Canada may apply for examination for certification by the American Board of Pediatrics.

Such foreign candidates who are returning to their own country at the end of their training period may be examined withou completion of two full years in the practice of pediatrics. Th residency training requirements must be completed in full i advance of admission to any part of the examinations.

A special certificate, appropriately identified to distinguish from the regular certificate of this board, may be issued to suc candidates who have passed successfully the examinations this board after they have completed such a period of practic or further study in their own country which, when added similar experience in the United States or Canada, make a tota of two years of the practice of pediatrics.

APPLICATION

Application must be made on special blanks, which will be furnished by the executive secretary after a preliminary survey of the applicant's training. Applications may be submitted one year in advance of eligibility date; they will not be accepted earlier. The number of candidates admitted to a given written examination will be determined by the number who can be examined orally during that year, plus a reasonable number of alternates.

LETTERS OF RECOMMENDATION

Letters from two competent pediatricians recommending each applicant must be sent to the executive secretary of the board. These letters should not accompany the application but should be sent directly to the executive secretary.

FEES

The application fee is $100.

The full fee must be remitted with the application. Refund will be made only if the applicant is refused examination for reason other than failure in the same.

No additional fee is required for second and third written examinations. The fee for second and third oral examinations is $50 each.

Members of the board receive no financial recompense of any kind beyond their travel expenses to examinations and board meetings.

FAILURE IN EXAMINATIONS

As indicated above, a written examination must be passed before a candidate is eligible for oral examination. Written reexaminations may be taken one and two years later. After a third failure, the situation will be reviewed by the board and a decision concerning subsequent procedure will be made.

Applicants who fail an oral examination become eligible for a second examination after a year has elapsed. After a second failure another examination will be permitted in one year. Before becoming eligible for a fourth examination a candidate must serve one year in a full-time medical inpatient residency in an approved institution. He must then reapply as a new candidate and pay a new fee.

POSTPONEMENT OF EXAMINATION

After acceptance of his application a candidate is expected to take the next written examination offered. If desired, he may postpone this examination for one more year. Any further postponement must be for due cause acceptable to the board.

After having passed the written examination, a candidate must appear for oral examination within two years, unless excused for due cause by the board.

After failure in either part 1 or part 2, a candidate must appear for reexamination within two years unless excused for due cause by the board.

Failure to appear for examination within the period indicated above, unless excused by the board, will result in loss of eligibility to appear for examination. In order to be reinstated, a candidate must then submit a new application and a new fee.

PURPOSE OF EXAMINATIONS

The purpose of these examinations is to determine the applicant's competency to practice pediatrics of high quality. Emphasis is therefore placed on practical aspects, but since good practice is founded on sound scientific data, the candidate must be prepared to demonstrate that he has a working knowledge of these basic data.

Clinical and abstract aspects of growth and development are fundamental parts of pediatric training, and about one-fourth of the oral examination is devoted to this phase of the subject. Diagnosis and treatment of disease fill another quarter, and the remainder of the examination is devoted to study and discussion of "cases."

Candidates who are admitted to the oral examination (part 2) will not be informed of their grade on the written portion. Their relative standing in part 1 will, however, be utilized in the final decision with regard to passing.

Candidates who fail after taking part 2 will not be required to retake part 1 but may be advised to do so in order that they may have an opportunity to improve a low score.

CERTIFICATION IN SUBSPECIALTY OF ALLERGY BY THE AMERICAN BOARD OF PEDIATRICS, INC.

Members—Subspecialty Board of Pediatric Allergy

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William C. Deamer, San Francisco.
Jerome Glaser, Rochester, N. Y.
George B. Logan, Rochester, Minn.
James Overall, Nashville, Tenn.
Bret Ratner, New York.

The American Board of Pediatrics, Inc., has established certification in allergy as a subspecialty of pediatrics.

All candidates must pass the written and oral examinations in pediatrics before submitting an application for examination in allergy.

Each allergy application is individually considered and must be accepted by the subspecialty board.

INFORMATION CONCERNING EXAMINATIONS

Allergy examinations consist of written and oral portions. The written examination will be given once a year under a local monitor and must be passed before admission to the oral examination will be authorized. Oral examinations will be held at times and places designated by the chairman of the subspecialty board. Ample notice will be sent to candidates by the executive secretary.

FAILURE IN EXAMINATIONS

As indicated above, a written examination must be passed before a candidate is eligible for oral examination. Reexaminations may be taken one and two years later. After a third failure, the situation will be reviewed by the board and a decision concerning subsequent procedure will be made.

Applicants who fail an oral examination become eligible for a second examination after a year has elapsed. After a second failure another examination will be permitted in one year. Before becoming eligible for a fourth examination a candidate must serve one year full time in a satisfactory allergy clinic and its hospital including training in both allergy and pediatrics.

FEES

The application fee for certification in allergy will be $100 effective July 1, 1952.

The full fee must be remitted with the application. Refund will be made only if the applicant is refused examination for reason other than failure in the same.

No additional fee is required for second and third written examinations. The fee for second and third oral examinations is $50 each.

Members of the board receive no financial recompense of any kind beyond their travel expenses to examinations and board meetings.

Application forms will be forwarded on request to the office of the executive secretary and should be returned to that office when completed. All correspondence should be addressed to him.

REQUIREMENTS

1. Certification in pediatrics.
2. Two years full time of approved allergy residency or fellowship training in an approved clinic and its hospital, or
3. One year full time of approved allergy residency or fellowship training and two years, part time, 200 hours a year in an approved clinic and its activities, or
4. Five years, part time, 200 hours a year in an approved allergy clinic and its activities.
5. Preceptorship alone is not acceptable, but a resident or fellow doing full-time work in allergy may spend part of his time working with private patients in the hospital or in the office of an allergist qualified to give this training.

Until clinics are officially approved the candidate should assure himself that the clinic is satisfactory for training by writing to the executive secretary of the Board of Pediatrics. In general such clinics will be in hospitals that have been accepted by the Council on Medical Education and Hospitals of the American Medical Association and by the American Board of Pediatrics for training in pediatrics, or have been approved for training in allergy by the Board of Pediatric Allergy or of Internal Medicine.

Under all methods of study there must be presented evidence of serious work in research or clinical investigation.

The candidates must be prepared for a searching examination in the theory and practice of allergy. This will include the theory of the underlying mechanisms, animal experimentation, the clinical manifestations in the so-called allergic diseases, especially as they appear in infants and children, and also the allergic factors that may be present in other diseases. They must be prepared to discuss the important diagnostic procedures and methods of treatment and, in controversial matters, they must be familiar with the arguments on both sides of the question.

CERTIFICATE

When accepted the diplomate will receive from the American Board of Pediatrics a certificate in allergy and will be listed as a specialist in allergy.

Prospective applicants for certification in the subspecialty of allergy may apply to the executive secretary of the American Board of Pediatrics.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION

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William Bierman, New York.
Donald A. Covalt, New York.
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Walter J. Zeiter, Cleveland.
Earl C. Elkins, Secretary-Treasurer, 200 First, S.W., Rochester, Minn.

QUALIFICATIONS FOR ELIGIBILITY TO EXAMINATION FOR CERTIFICATON

Each applicant for admission to the examination shall be required to present evidence that he has met the following standards:

A. *General:*

1. Satisfactory moral and ethical standing in the profession.

2. A legal license to practice medicine in one or more of the states of the United States of America or its territories, or the District of Columbia, or one or more of the provinces of Canada.

B. *Professional:*

1. Graduation from a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association or graduation from a foreign medical school which, in the opinion of the board, offers medical education equivalent to such an approved school.
2. Completion of an internship in a hospital approved by the same Council.

C. *Special Training:*

1. A period of study after the internship of not less than three years in clinics, dispensaries, hospitals, or laboratories recognized by the same Council and by the American Board of Physical Medicine and Rehabilitation as competent to provide a satisfactory training in physical medicine and rehabilitation. Each year of training in such an approved program counts as two units against a total of eight units, necessary for eligibility to both parts 1 and 2 of the examination (see below). A total of only six credits may be earned in this manner.
2. This period of specialized preparation shall include: (1) graduate training in anatomy (including kinesiology and functional anatomy), physics (including radiation physics, electronics, and medical instrumentation), physiology, pathology, and other basic sciences that are necessary to the proper understanding of physical medicine and rehabilitation; (2) an active experience of not less than two years in hospitals, clinics, dispensaries, and diagnostic laboratories recognized by the Council on Medical Education and Hospitals and the American Board of Physical Medicine and Rehabilitation.
3. An additional period of not less than two years of practice in physical medicine and rehabilitation. One unit of credit is granted for each year of practice in physical medicine and rehabilitation.
4. Experience comparable to specialized training. Training in approved residency programs in closely allied medical-surgical fields may be acceptable in whole or in part, but maximum credit is limited and based on individual interpretation by the board. In selected cases, at the discretion of the board, two years of specialization in physical medicine and rehabilitation may be accepted as equivalent to one year of formal training.

METHOD OF EXAMINATION

The examination for certification by the American Board of Physical Medicine and Rehabilitation is given in two parts. Part 1 is written, part 2, oral. Part 1 alone may be taken after the completion of six units of credit. Upon the completion of part 1, part 2 may be taken after an additional two units of credit are obtained. Parts 1 and 2 combined may be taken only after a total of eight units of credit have been obtained.

The written and oral examination will cover certain aspects of the basic sciences as well as clinical physical medicine and rehabilitation.

A. The basic sciences as related to physical medicine and rehabilitation will include:

1. Anatomy (including kinesiology and functional anatomy).
2. Physics (including radiation physics, electronics, and instrumentation).
3. Physiology (including physiology of movement and physiological effect of the various physical agents used in physical medicine and rehabilitation).
4. Pathology.
5. Other fundamental sciences. The applicant will be examined concerning his knowledge of such subjects as biochemistry and bacteriology as related to physical medicine and rehabilitation.

B. The clinical aspects of physical medicine and rehabilitation will include:

1. Those diseases and conditions that come within the field of physical medicine and rehabilitation. These include arthritis and the various rheumatic diseases, neuromuscular diseases such as poliomyelitis, cerebral palsy, and paraplegia and musculoskeletal diseases, including the large group of traumatic and orthopedic conditions.
2. The clinical usage of such physical agents as heat, water, electricity, ultraviolet radiation, massage and exercise, etc.
3. A knowledge of the role of associated personnel within the field of physical medicine and rehabilitation such as the physical therapist, occupational therapist, clinical psychologist, social service worker, and vocational guidance counselor, and the ability to coordinate the services of such personnel.
4. An understanding of the basic principles of physical medicine and rehabilitation, and the ability to prescribe specific treatment to be executed by technical and ancillary personnel.

APPLICATION

The application form shall contain a record of the candidate's premedical and medical training as well as of internships, graduate study, hospital or dispensary staff appointments, teaching positions, length of time practice has been limited to physical medicine and rehabilitation, medical papers published, and the names of three well-known physicians to whom the board may write for professional and character references. Three letters of reference must be submitted with the application.

The application shall also be accompanied by one recent signed photograph of the candidate mounted on the application, and by the fee of $100, which fee will cover the evaluation and both the written and oral examinations. (In case of rejection of application, this fee will be refunded with the exception of $15, which will be considered an evaluation fee.)

CERTIFICATES

The certificate issued by the American Board of Physical Medicine and Rehabilitation shall be in such form as to comply with the articles of incorporation and bylaws and shall be signed by the chairman and the secretary-treasurer of the board and shall bear the official seal of the board.

Certificates of the board shall be issued to the effect that the applicant has been found qualified to practice physical medicine and rehabilitation.

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Lyndon A. Peer, Newark, N. J.
Clarence R. Straatsma, New York.
Frank McDowell, Secretary-Treasurer, St. Louis
Estelle E. Hillerich, Corresponding Secretary, 4647 Pershing Ave., St. Louis 8.

GENERAL REQUIREMENTS FOR QUALIFICATION

The following requirements are in agreement with those promulgated by the Advisory Board for Medical Specialties and by the Council on Medical Education and Hospitals of the American Medical Association.

1. Moral and ethical standing in the profession satisfactory to the board.

The board, believing that the practice of "fee splitting" is pernicious, leading as it does to traffic in human life, will reserve the right to inquire particularly into any candidate's practice in regard to this question.

2. Those whose activities are limited to the practice of plastic surgery.

3. This board will accept as applicants for examination only those who are full citizens of the United States or Canada. Notarized statements, not original citizenship papers, attesting to the fact of full citizenship in the United States or Canada must be furnished by foreign-born applicants when the application is filed. Such candidates must have at least two years of practice in plastic surgery in North America after completing the training required by the board.

PROFESSIONAL REQUIREMENTS FOR QUALIFICATION

The board considers the requirements outlined below to be minimal in attaining its purposes and encourages candidates to take advantage of broadening experience in other fields. Candidates must fulfill the requirements that are in force at the time of their examination and/or certification.

1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a foreign school considered acceptable by the board.

2. Completion of an internship of not less than one year in a hospital approved by the same council.

3. Two years of postgraduate work in general surgery, beyond the intern year, as a resident or an assistant resident in a hospital approved by the same council.

4. Training in general plastic surgery, including maxillofacial surgery, for an additional period of not less than two years in a residency approved by the same council, or in a preceptorship approved by the board. In fulfilling this requirement, there is a limit of one year's credit given for all work done in all governmental plastic surgery residencies (Army, Navy, VA hospitals, etc.) regardless of the time put in by trainees in such residencies. It is required that all such trainees take one additional year of approved training in plastic surgery in a civilian residency or preceptorship.

5. During these years of training following the internship year, a candidate must hold positions of increasing responsibility for the care and management of patients with surgical conditions. When a candidate receives his training in more than one institution, it is equally imperative that he hold positions of increasing responsibility. He must have sufficient operative experience to acquire surgical skill and judgment through the performance of surgical operations with a high degree of responsibility, but under circumstances providing adequate opportunity for consultation and advice.

6. An additional period of not less than two years of practice in plastic surgery. If a candidate elects to spend one or two additional years in approved training in plastic surgery, one year of such training will be credited toward the required two years of private practice if it can be demonstrated that the candidate held a position of increasing responsibility. It is imperative that one year be in actual private practice in such instances.

The above training in plastic surgery may be taken as a resident in an approved hospital or under an approved preceptorship offering equivalent training (a list of currently approved preceptorships is available from the board office). By the latter statement it is meant that one may secure the necessary and specified training as an assistant to an accredited plastic surgeon provided suitable facilities for the education of the candidate are offered.

The period of special training should emphasize the relation of the basic sciences—anatomy, pathology, physiology, biochemistry, bacteriology—to the application of surgical principles which are fundamental in all branches of surgery, and especially to plastic surgery. In addition, the candidate must understand and be trained in the following subjects: the care of emergencies, shock, hemorrhage, blood replacement, electrolyte and fluid balance, choice of anesthetics, chemotherapy, acidosis and alkalosis, narcotics and hypnotics, wound healing, etc.

The board reserves the privilege of requesting lists of operations done solely by the candidate for one or more years, or of requesting special and extra examinations, written or oral and practical, and of requesting any specific data concerning the candidate that may be deemed advisable before making final decision for certification.

Eligibility rulings or an evaluation of a candidate's qualifications or training cannot be made by the secretary or by any one member of the board. Official evaluations of qualifications are made only by the committee on credentials and requirements, or by the entire board where necessary, after a review of the candidate's formal application for such rulings. The applicant must allow at least two months for such requests to make the rounds of the committee.

TRAINING FACILITIES

Residencies.—The American Board of Plastic Surgery, in cooperation with the Council on Medical Education and Hospitals of the A. M. A. and the American College of Surgeons, evaluates training facilities in institutions providing acceptable residencies in plastic surgery. The board does not assume the responsibility for independent inspection and approval of residencies. It will inspect and make recommendations for or against approval of a residency in plastic surgery only after the director of the residency has applied to the Council on Medical Education and Hospitals of the American Medical Association for approval of the residency, and after the Council has notified the board to that effect. Therefore any diplomate of the board wishing approval of a residency under his supervision should apply to the Council for such approval. The board will make its own inspection, preferably at the same time as the A. M. A. Council inspection, and will report its findings to the Council. Upon completion of consideration by the Council and the board, the hospital will be notified by the Council of the joint action that has been taken, and the hospital and the secretary of the board will be notified simultaneously by the Council to avoid any misunderstanding as to the status of the program.

Preceptorships.—In certain instances the board will accept, in lieu of the required two years' training in an approved residency, training in a preceptorship under a fully qualified plastic surgeon when such preceptorship is properly organized and supervised to give the trainee adequate experience and training in plastic surgery of a well-rounded nature. Certain established preceptorships are given full approval. New preceptorship programs will be given tentative approval in advance on presentation to the board by the preceptor of a well-rounded plan of training. In such instances, the trainee will be required to keep a detailed record of his experience, presenting this report to the board at intervals of six months, on a report form supplied by the board on request. If the preceptorship program of training is found adequate in scope, it will be transferred to the fully approved list. In preceptorship programs of training it would be well for the preceptor to report annually to the board the name and qualifications of any preceptee under his supervision and the work done by the preceptee. (Application forms for requesting tentative approval of preceptorship programs of training are available from the board office.) Neither the board nor its individual members can be responsible for the placing of applicants for training. The board considers those residencies approved by the Council on Medical Education and Hospitals of the A. M. A. as acceptable facilities for training in plastic surgery.

It should be kept in mind by all that the primary interest of the board is to encourage well-rounded training in plastic surgery with the aim of producing plastic surgeons capable of doing good work in the wide variety of cases which may come under their care. The standards set up by the board, both for preliminary general surgery and for specialized plastic surgery training, are established in an effort to further this aim. The quality of the training received should be reflected in the candidate's ability to achieve good results in his practice, and the examinations of the board are an attempt to judge the ability of the candidate in the specialty of plastic surgery.

A residency in plastic surgery is one in which a hospital appointment for training in plastic surgery is given the trainee. In a preceptorship in plastic surgery no such appointment is given.

While the board permits flexibility in training, approved residencies and preceptorships should be under fully qualified plastic surgeons. Those trained in preceptorships will be judged by the candidate's ability to make the most of his training and to show adequate ability in all phases of the subject.

There must be teaching in either a residency or a precpetorship—instruction in the basic sciences and in the basic principles of plastic surgery—if not in actual courses, then by conferences, ward rounds, lectures by men on the service or other services, or by visiting doctors.

A resident or assistant resident in plastic surgery should have a full-time appointment from an A. M. A. Council-approved hospital or hospitals. A preceptee does not have such an appointment. A residency should preferably be in connection with a teaching hospital having medical school affiliations or be under the Dean's Committee of Veterans Administration hospitals. An acceptable residency is one that is approved by the Council on Medical Education and Hospitals of the American Medical Association.

Before training in plastic surgery is begun, the plastic surgeon in charge of the residency or preceptorship should ascertain that the trainee's preliminary training in general surgery meets the requirements of the board, that is, two years of residency training in general surgery after the internship year.

The training in plastic and maxillofacial surgery (at least two years) whether in a residency or a preceptorship, should cover a wide field of plastic surgery, both as to type and anatomic distribution. It should include experience in the treatment of congenital and acquired defects and deformities of the face, neck, body, and extremities, for both functional and esthetic reasons. There should be available sufficient material of a diversified nature so that the trainee will be able to pass the examinations of the board after the period of training and the two additional years of private practice. If the available material on one service is inadequate, the deficiency should be made up by affiliation with another plastic surgeon on another service so that a broad experience will be obtained in plastic surgery. The trainee should be provided an opportunity to operate under the direct supervision of the plastic surgeon in charge, and with increasing ability, should be given an opportunity to operate independently on suitable cases under more remote supervision.

RESIDENCY INFORMATION SERVICE

The Council on Medical Education and Hospitals of the American Medical Association maintains a "Residency Information Service," published quarterly, giving lists of available residency appointments in approved services in the specialties. Anyone having a residency opening in plastic surgery training should submit the information to the Council. This bulletin, showing available openings in residency appointments in plastic surgery, and other specialties, may be had from the Council on request.

MILITARY CREDIT

Credit for military service is given on an individual basis, each case being considered on its own merits and the amount of credit allowed is determined by the board when the information is submitted with the application.

MEDICAL OFFICER'S PROFESSIONAL TRAINING RECORD

The Medical Officer's Professional Training Record (DD Form 408) is a record maintained by individual Medical Corps officers for presentation to the various authorized accrediting boards toward certification. This record is presented by the officer to the boards for evaluation of the miliary experience acquired by Medical Corps officers while serving in the Army Medical Service. This form has been prepared by the Surgeon's General of the armed services with the assistance of the Council on Medical Education and Hospitals of the American Medical Association and is distributed by the offices of the Surgeons General to their personnel. It is highly important that prospective applicants obtain a copy of this form and that it be submitted with their credentials for evaluation by the board.

CASE REPORTS

Upon approval by the board of a candidate's application for certification, each candidate is required to submit to the board 35 or more case reports illustrative of his independent work in the field of general plastic surgery.

Candidates are admitted to examination only after submitting case reports that meet the required standards of the board and that have been approved by the committee on credentials and requirements.

Case reports must be submitted within one year from the time of such request; otherwise a new application must be filed. The case reports shall conform to conditions which the board may from time to time specify.

Case reports must be received in the office of the board by Jan. 1 for those who desire to be considered for the spring (May-June) examinations of the board and by June 1 for the fall (October-November) examinations. There will be no exceptions to these two deadlines.

The 35 case reports must be of a diversified nature and must be submitted to the office of the board together with before and after photographs. They should be of the following distribution:

1. Cleft lip: 1 to 3 cases
2. Cleft palate: 1 to 3 cases
3. Traumatic defects requiring reconstructive surgery:
    - (*a*) Face and neck: 2 to 4 cases
    - (*b*) Body: 1 to 4 cases
    - (*c*) Extremities: 1 to 6 cases
4. Acute burns: 2 to 4 cases
5. Fracture of facial bones, excepting nasal fractures: 1 to 3 cases
6. Esthetic operations of sufficient variety: 6 to 12 cases
7. Plastic surgery of the hand: 2 to 4 cases
8. Malignancies, or conditions prone to malignancies (eradication and repair):
    - (*a*) Face: 2 to 4 cases
    - (*b*) Body: 1 to 3 cases
    - (*c*) Extremities: 2 to 4 cases
9. Congenital anomalies: 1 to 6 cases
    - (*a*) Examples:
        - (1) Syndactylism
        - (2) Congential absence (partial or total) of external ear
        - (3) Hypospadias
        - (4) Bands (constricting)
        - (5) Thyroglossal duct cyst
        - (6) Extensive nevi, etc.

To be accepted, case reports must be assembled according to the following instructions. The group must include a variety of material from the entire body rather than a number of cases of one type and should carry the candidate's personal deductions, conclusions, and comments and should be sufficiently detailed to show if the conclusions drawn indicate a grasp of the subject and if the results justify the procedure.

Each case report should be individually assembled, typed on letter-size paper (8½ x 11 in.), with the candidate's name and the number of the case on each page. Each report should have a cover-sheet with the candidate's name, the number of the case, hospital number, diagnosis, and a brief summary of the case. The pages of each case should be stapled together securely and placed in an ordinary manila letter-file folder (nothing heavier). Do not use paper fasteners of any kind; merely staple the pages together with one staple in the upper left-hand corner. Photographs of conditions, before and after operation, and drawings of operative technique illustrative of each case should be included and attached to each case. Mount the photographs on a sheet of letter-size paper, or manila file-folder paper (nothing heavier), with the name of the candidate and the number of the case indicated. The photographs should be uniform in size, not less than 3 x 4 in. (kodachrome transparencies not acceptable; enlargements accepted), made by a sharp focus lens from untouched negatives with identical lighting conditions, exposure, and developing, not reversed, to show conditions before and after operations with clear detail. Each case report should be placed in a manila letter-file folder with the number of the case and the candidate's name on the outside (upper, right-hand corner) of folder.

Cases should be chosen from the private practice of the candidate or from the hospital or clinic service. The initials, color, age, and occupation of each patient should be stated, as should the name of the hospital where treated and dates of admission, operation, and discharge. The important details of family history, if relevant, and of the previous history should be given. The condition for which the patient consulted candidate should be stated clearly and concisely, indicating previous treatment, if any, and the mental, social, or economic factors involved. The physical examination of the patient with special reference to the existing deformities should be carefully described. All laboratory and other special examinations, such as roentgenograms, which were made should be reported, with a statement of what was determined by them. The indications for operation and for the type of operation employed should be given, and the preliminary treatment and the type of anesthesia used should be stated. A full description of the operative technique with methods of hemostasis, suture, and drainage, if any, and the name of the assistant should be given. The early and late postoperative course and results should be described.

If the case reports and lists of operations are approved, the candidate will receive subsequent information regarding taking the examinations. The board at its discretion may request certification of case reports by the hospital where the operations were performed. The following form should accompany the case reports: "I hereby certify that the planning and essential surgical procedures described herein were carried out by me as an independent operator."

Every candidate's final acceptability for examination is based not only on the evaluation of his training qualifications, but on his professional ability as a plastic surgeon, his ethical standing in the community, and the strict limitation of his work to plastic surgery.

A candidate should remember that these case reports are documentary evidence of his ability and that the material in them and the manner of presentation are important evidences of his ability.

EXAMINATIONS

In instances where a candidate submits case reports that do not meet the standards of the board, he will be required to submit additional case reports or an entirely new set of 35 within a period of one year. If this second series of case reports again do not meet the standards of the board, the candidate may be required to take additional training (of length and type specified by the board) before he will be allowed to submit any further case reports.

After a candidate has been notified that he has fulfilled the preliminary requirements and that his case reports have been approved, he will be required to take the qualifying examination within a period of three years.

After approval of the case reports, and prior to the examination, the candidate will be visited at his place of practice by a member or members of the board to observe him operate and to examine a number of his preoperative and postoperative cases.

The qualifying examinations are given twice yearly, in the spring and fall. The spring examination is given immediately preceding, during, or following the annual meeting of the American Association of Plastic Surgeons (usually in May), and the fall examination is given immediately preceding, during, or following the annual meeting of the American Society of Plastic and Reconstructive Surgery (usually in September or October). Candidates are required to go to the designated center for the qualifying examination, which will last three days. These centers will be the city in which the meetings of these two organizations are held if the proper clinic and hospital facilities are available, otherwise in some nearby city where such material is available. Arrangements for all examinations are made by the examination committee.

A written examination will consume all of the first day and half of the second day. An oral and practical examination will consume the afternoon of the second day and all of the third day. The subjects of the written examination are (1) theory and practice of plastic surgery, (2) applied anatomy, applied physiology, (3) pathology, bacteriology, clinical laboratory methods (pharmacology), (4) reaction of tissue to injury, surgical accidents, anesthesia. A general oral examination pertaining to plastic surgery will be given. In the practical part of the examination, the examiners will present a group of patients for examination by the candidates, and the candidates will be quizzed on methods of procedure—diagnosis, treatment, technique, and so on. Slides of preoperative conditions will be shown on a screen and the candidate asked to make a quick diagnosis of the items and to tabulate in the order of their importance the methods of treatment. Microscopic slides of the average pathological tissue falling within the province of the plastic surgeon will be given the candidates, and they will be asked to write a description and diagnosis.

GRADES

To be considered as passing, the candidate will be required to receive a grade of at least 65% in each portion of the written examination and an average grade of 75% on the entire written and oral examination.

REEXAMINATIONS

Candidates who have failed in any portion of the examination may be admitted to another examination after one year, or within three years, except in such cases as the board may for good and sufficient reason deny a candidate the privilege of reexamination. A candidate who fails one reexamination will be admitted for further examination only after submitting evidence of additional study and preparation. The candidate must give 60 days' notice requesting reexamination and pay a fee of $25 for the written examination and $25 for the oral and practical examination. The examiners conducting the first examination will not be eligible to conduct the reexamination.

CERTIFICATION

After a candidate has met the requirements for eligibility and passed the examinations of the board, a certificate attesting his qualifications in plastic surgery will be issued to him by the board, signed by its officers and having the seal of the board affixed thereto. It shall be the prerogative of the board to determine the fitness professionally and ethically of any candidate for its certificate, and the action or decision of the board regarding the certification of any candidate shall be final.

FEES

The fee for application and examination is $150. Of this sum, $25 must accompany the application and the remaining $125 must be paid when the candidate is notified of acceptance for examination. There will be no refunds. This fee may be increased at the discretion of the board. The board is a nonprofit organization, and the fees of candidates are used solely for defraying the actual expenses of the board. The members of the board serve without remuneration. Because of the limited number of surgeons certified by this board it is necessary for a limited time to request a voluntary annual prorata contribution from diplomates after the first year's certification to help defray expenses.

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GENERAL ELIGIBILITY REQUIREMENTS FOR EXAMINATION

1. Good moral character and high ethical and professional standing.

2. Graduation from a medical school in the United States or Canada approved by the Council on Medical Education and Hospitals of the American Medical Association, or from a foreign medical school satisfactory to the board.

3. An internship of at least one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association or in a foreign hospital satisfactory to the board.

4. Licensure to practice medicine in the United States or in the Dominion of Canada.

SPECIAL REQUIREMENTS IN AVIATION MEDICINE

1. Successful completion (after internship) of at least two academic years of graduate study in preventive medicine and aviation medicine, one year of which graduate study shall be in a school of public health accredited for the purpose of such graduate study by the American Public Health Association and one year of which shall be in a school of aviation medicine accredited for the purpose of such graduate study by the Council on Medical Education and Hospitals of the American Medical Association; or training and study deemed by the board to be substantially equivalent to such graduate study.

2. *Residency (after internship) of at least one year of supervised experience in aviation medical practice, which included planned instruction, observation, and active participation in a comprehensive, organized program of aviation medicine.

3. Supervised practice of aviation medicine (after internship) of not less than one year, in addition to 1 and 2 above, of special training in or teaching or practice of aviation medicine.

4. A period (after internship) of not less than two years, in addition to 1, 2, and 3 above, of special training, teaching, research or practice of aviation medicine.

5. Limitation of practice to full-time teaching, research, or practice of aviation medicine.

6. Regular and frequent participation in aerial flight.

Credit for training and experience in public health or aviation medicine while in military service will be considered on an individual basis, depending on the type of service.

SPECIAL REQUIREMENTS IN OCCUPATIONAL MEDICINE

1. Successful completion (after internship) of at least two academic years of graduate study in preventive and occupational medicine in a school of medicine or a school of public health. The schools in which such instruction is provided shall be accredited for graduate study by the Council on Medical Education and Hospitals of the American Medical Association or the American Public Health Association in accordance with the jurisdictions of these accrediting agencies; or training and study deemed by the board to be substantially equivalent to such graduate study.

2. Completion (after internship) of not less than one year, in addition to 1 above, of supervised experience (residency) in occupational medical practice in an industrial or medical organization. This residency shall provide planned instruction, observation and active participation in a comprehensive program of occupational medicine; or a comparable period of experience deemed by the board to be substantially equivalent to such year of supervised experience.

3. A period (after internship) of not less than three years, in addition to 1 and 2 above, of special training in or teaching or practice of occupational medicine.

4. Limitation of practice to full-time teaching, research, or practice of occupational medicine.

FEES

The fee for application and examination is $90, payable as indicated below; additional fees are payable for reexamination as set forth below, but no additional fee is payable for the issuance of a certificate.

Application fee, $15. No application will be considered unless accompanied by the application fee. The application fee is not refundable.

Examination fee, $75. This fee is payable when the candidate is notified of acceptance for examination, and, if paid prior thereto, is not refundable after such notification has been given.

No member of the board has the authority to give informal opinions as to the eligibility of the candidates. The determination of eligibility will be made only by the board after receiving full application information. Each candidate must comply with board regulations in effect at the time the examination is taken, and also those in effect at the time the certificate (if any) is issued, regardless of when the original application was filed. An applicant declared ineligible for admission to examination may refile or reopen his application on the basis of new or additional information within two years of the filing date of his original application without payment of an additional application fee.

Applicants who are declared eligible for examination but who fail to submit to examination within three years of the date of the filing of the application are required to file a new application and to pay a new application fee.

CERTIFICATION IN OCCUPATIONAL MEDICINE WITHOUT EXAMINATION (THE FOUNDERS GROUP)

The bylaws authorize the board, for a limited period of time, to excuse from examination specialists in occupational medicine who have attained high academic rank in an approved medical school or an accredited school of public health or professional position, or by reason of distinguished achievement in the field of occupational medicine are recognized leaders, or have had a minimum of 10 years of distinguished service in the field of

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* Approval of residency training is in the process of development. Until such time as an adequate program of residency is developed, field training will be evaluated by the board on an individual basis. Information as to approved residencies may be obtained from the Council on Medical Education and Hospitals or from the secretary of the board.

occupational medicine and are considered eligible by the board, whether or not they meet the eligibility requirements previously referred to. Applications for consideration as members of the Founders Group must be received not later than July 1, 1956. The application fee must accompany the application, and the examination fee is payable before certification even though the applicant be excused from examination.

EXAMINATIONS

Examinations will be held from time to time and in various places depending upon need as indicated by applications received. Examinations will ordinarily be held in connection with the annual meetings of one or more of the sponsoring societies and may also be held at other times and at other places so located geographically as to minimize travel for the applicants.

The examination consists of three parts: Part 1 consists of a comprehensive written examination designed to test the knowledge of the applicant in the general field of preventive medicine. Part 2 is a comprehensive written examination designed to test the knowledge of the applicant in the special field in which he requests certification. Part 3 is an oral or practical examination that will usually be held at the completion of the written examinations. An endeavor will be made to adapt the details of the oral or practical examination to each candidate's experience and practice. The examiners will report on each candidate to the assembled board, by which the results of the examination will be considered.

REEXAMINATION

Candidates failing the first examination taken may, upon timely request, be admitted to a second examination within 18 months following the examination failed, upon payment of an additional fee of $15. If the candidate fails the second examination, a period of 11 months must elapse before admission to a third examination. A fee of $25 is required for admission to the third examination. Candidates failing three examinations will not be admitted to any subsequent examinations unless the board so directs.

CERTIFICATION

On satisfactory completion of the examination and proof to the satisfaction of the board that the applicant is eligible for certification, a certificate will be issued to the effect that the person named has been found to be possessed of special knowledge in the field specified in his application. The certificate will be signed by officers of the board and will have its seal affixed. Each certificate remains the property of the board, but the person to whom it is issued shall be entitled to its possession unless and until it is revoked. Any certificate issued by the board may be revoked if evidence, satisfactory to the board is presented that the applicant was not eligible to receive it at the time of examination or issuance, or that he misstated, misrepresented or concealed any pertinent fact, or that his license to practice medicine has been suspended or revoked, or that he has ceased to be engaged in the teaching or practice of the specialty in which he has been certified. The issuance of a certificate to any person does not constitute such a person a member of the board.

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QUALIFICATIONS OF CANDIDATES

General Qualifications and Requirements.—All candidates shall comply with the current regulations of the board, regardless of the time of filing applications. These are as follows:

1. Candidates shall have limited their practice to proctology, shall appear personally before the board, and shall submit to the required examination.

2. They shall deliver to the board an official record of patients hospitalized by them during the year prior to the date of submission of the application if the board requests it.

3. They shall submit a bibliography of papers and books published.

4. They shall possess moral, ethical, and professional qualifications acceptable to the board.

5. They shall possess full citizenship in the country where they practice (limited to countries of North and South America, their possessions and their territories, and the Philippine Islands).

Professional Qualifications.—

1. They shall be graduates of medical schools approved by the Council on Medical Education and Hospitals of the American Medical Association.

2. They shall possess a license to practice medicine in the country of their residence.

3. They shall have completed an internship, preferably of the general rotating type, of not less than 12 months in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association.

Special Professional Qualifications.—They shall have completed:

1. Two years of approved general surgical residency and two years of approved proctologic residency; or

2. Three years of approved general surgical residency and two years of approved proctologic precepteeship; or

3. Two years of approved general surgical residency and three years of approved proctologic precepteeship.

APPLICATIONS

Each candidate for examination shall submit an application prepared upon the prescribed form, which shall be furnished by the secretary of the board. It shall contain a record of the candidate's premedical and medical training, internships, residencies, precepteeships, other postgraduate study, hospital and dispensary appointments, teaching positions, service in the armed forces, service in federal, state, or local government, membership in medical societies, and any additional information considered valuable by the board. The application shall be signed by two proctologists. It shall be accompanied by two unmounted autographed recent photographs of the candidate, letters of endorsement from appropriate sources, and the application fee. It shall be filed with the secretary not less than 90 days prior to the date of examination.

EXAMINATIONS

Examinations are conducted at times and places determined by the board and are announced in The Journal of the American Medical Association. An average of 75% is the passing grade on all examinations. All examination papers are identified only by numbers assigned to candidates, and the examiners do not know the identity of the examinees.

Part I.—This examination consists of a comprehensive written examination in anatomy, physiology, pathology, bacteriology, biochemistry, and other basic sciences. It is usually held in the spring of the year in several cities of the United States. Candidates who have passed part 1 examinations of the American Board of Surgery or who are diplomates of this board and who have completed required training in proctology may, upon approval of the American Board of Proctology, be excused from taking part 1 of the examinations of the American Board of Proctology.

Part 2.—This examination consists of comprehensive written and oral examinations on the theory and practice of proctology. It includes questions on roentgenologic interpretation and other subjects considered appropriate by the board. Usually this examination is held in the fall of the year in one city of the United States. The oral portion of the examination is conducted by the members of the board or by designated examiners. An attempt is made to ascertain the candidate's knowledge of current proctologic literature, his knowledge of the basic sciences, the extent of his clinical experience, and other qualifications.

Part 3.—This examination is held in the community in which the candidate conducts his professional activities. It may be omitted at the discretion of the board. Candidates required to take part 3 are notified by the secretary and arrangements for the examination are made that are suitable to the candidate and the examiner. The examination shall involve: (1) surgical operations, (2) hospital rounds, (3) hospital and office records, and (4) office practice.

REEXAMINATIONS

A candidate who fails in part 1 or part 2 may be reexamined after one year has elapsed. The act of filing an application for reexamination is the candidate's responsibility. Candidates who have failed a reexamination may petition the board for another examination. With this petition, acceptable evidence of additional preparation shall be submitted.

FEES AND DUES

Fees.—Application fee. A fee of $25 shall accompany the application.

Examination fee. A fee of $150 is due and payable when the candidate is notified that he has been approved to take part 1 or part 2 examinations.

Reexamination fee. A fee of $50 is due and payable when the candidate is notified that he has been approved for reexamination in either part 1 or part 2 examinations.

Reexamination in Part 3.—Candidates for reexamination in part 3 may be held responsible for payment of expenses incurred by the board in conducting the reexamination. No fee shall be returned to the candidate without board approval. All fees shall be made payable to the American Board of Proctology and shall be sent to the secretary.

Dues.—Each diplomate is required to pay a fee of $10 to the board annually for a period of 10 years following certification.

Fees and dues are utilized to defray expenses incurred by board activities.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY

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APPLICATION FOR CERTIFICATES

An application, in order to be considered at any meeting of the board, must be in the hands of the secretary of the board not less than 90 days before the date of such meeting. A proper application form may be obtained from the secretary. Application may be made for certification in psychiatry or in neurology or in both fields. Applications will be formally considered only when made on the official application blank in such form as may be adopted from time to time by the board and when accompanied by an application fee in such amount as may be fixed by the board.

The secretary of the board, on receipt of an application, shall forthwith make inquiries from those to whom the candidate refers and from such other persons as the secretary may deem desirable and shall verify the candidate's record from the biographical records of the American Medical Association, after which he shall forward the application to the committee on credentials. This committee shall consider the application and other information available and notify the secretary whether the application is accepted. The certification of a candidate in either psychiatry or neurology, or both, shall be approved by a majority of the members of the entire board at any meeting held for such certification.

FORM OF CERTIFICATION

There shall be separate certification in psychiatry and in neurology and two certifications or a combined certification for those qualified in both fields. The certifications shall be in such form as is approved by the board of directors.

GENERAL REQUIREMENTS FOR APPLICANTS

Each applicant for a certificate must establish that:

1. He is a physician duly licensed by law to practice medicine.
2. He is of acceptable ethical and professional standing.
3. He is now a member of the American Medical Association. Exceptions to the foregoing may be made at the discretion of the board for good and sufficient reasons.
4. He has received adequate training in psychiatry or neurology, or both, as a specialty.

CLASSES OF APPLICANTS

Class A.—Applicants who graduated from an approved medical school before the foundation of the board (1934) will not be held to the strict interpretation of the published requirements in formal graduate training. Under such circumstances the board will consider the training and experience of the applicant and decide whether or not he will be admitted to the examinations. After Jan. 1, 1954, for such graduates the board will consider 10 years of full-time acceptable experience in psychiatry or neurology in lieu of the formal training requirements. Should the candidate then apply for supplementary certification, the credentials committee will require five years of additional acceptable experience in the supplementary field.

Class B.—Applicants who graduated from an approved medical school after 1934 shall fulfill the following requirements.

PROFESSIONAL EDUCATION

1. Graduation from a medical school in the United States or Canada approved by the Council on Medical Education and Hospitals of the American Medical Association. In the case of an applicant whose medical training has been received outside the United States and Canada, such training must be satisfactory to the afore-mentioned Council.

2. Completion of a year's internship approved by the same Council in general medicine, general surgery, pediatrics, or a rotating service.

3. The nine month wartime internships will be accepted as an equivalent of one year.

SPECIALIZED TRAINING

Admission to the examination for certification in psychiatry or in neurology requires a total of five calendar years of training and experience, three years of which must be specialized training obtained in approved training centers, plus two years of experience. Admission to the examination for certification in both psychiatry and neurology requires a total of six calendar years of training and experience, five years of which must be specialized training obtained in approved training centers, plus one year of experience. The specialized training may be subdivided into two and one-half years each in psychiatry and neurology or three years in one subject and two years in the other. The required years of experience should be spent in clinical practice with major responsibility for the care of patients.

This training for psychiatrists should include clinical work with psychoneurotic and psychotic patients, combined with the study of basic psychiatric sciences, medical and social psychology, psychopathology, psychotherapy, and the physiological therapies, including a basic knowledge of the form, function, and pertinent pathology of the nervous system. This training should be supervised and guided by teachers competent to develop skill and understanding in the utilization of such basic knowledge in dealing with patients. Mere factual knowledge is not sufficient. This training period should include instruction in the psychiatric aspects of general medical and surgical conditions and the behavior disorders of children and adolescents sufficient to develop practical ability to direct the treatment of such conditions. It should also include collaborative work with social workers, clinical psychologists, courts, and other social agencies. The training program of the candidate for certification in psychiatry should include sufficient training in neurology to enable him to recognize and to evaluate the evidences of organic neurological disease.

The training for neurologists should be based on clinical work with adults and children with neurological disorders, including the neurological complications of medical and surgical conditions. This should be combined with study of basic neurological sciences, neuroanatomy, neurophysiology, neuropathology, and neuroroentgenology. This training should be supervised and guided by teachers competent to develop skill and understanding in the utilization of such basic knowledge in dealing with patients. Mere factual knowledge is not sufficient. This training should include sufficient training in psychiatry to enable the candidate to recognize and to evaluate the common psychiatric reactions.

The board offers the foregoing two paragraphs as an outline of desirable training. If, however, the candidate has evidence of equivalent qualifications of training and experience not in the pattern here formulated, this evidence with appropriate documentary support may be included in his application for evaluation and possible approval by the board.

Candidates seeking certification in both neurology and psychiatry or supplementary certification in one after being certified in the other must submit evidence satisfactory to the board of an additional two years of full-time basic training in the supplementary specialty.

Thus, no candidate is eligible for examination by the board until he has completed at least five years of special training and experience in neurology or psychiatry for a single certificate, or at least six years of special training and experience in neurology and psychiatry for certification in both neurology and psychiatry.

The board will give not more than six months of credit for not less than six months of training in an approved training center for internal medicine or pediatrics in lieu of six months of experience to candidates for the certificate in psychiatry or neurology, but not to candidates for certification in both psychiatry and neurology.

The board will give credit for one year of training in child psychiatry providing it is the third year of the required three years of special training required by the board and providing it is taken in a center approved by this board for training in child psychiatry. After July 1, 1956, training credit for work in the field of child psychiatry may be gained only by participation in a hospital residency training program that is regularly approved. After that date, all independent training approval of psychiatric clinics for children is discontinued.

The list of training programs approved by this board and by the Council on Medical Education and Hospitals of the American Medical Association may be found in the current issue of the Internship and Residency Number of THE JOURNAL.

TRAINING IN THE ARMED FORCES

Credit will be granted for one year of wartime military service in the Army, Navy, Public Health Service, and Veterans Administration. Wartime to this board means Dec. 7, 1941, to Feb. 15, 1946. Further credit for specialized training will be granted only if the candidate has received training in an institution recognized by the Council on Medical Education and Hospitals of the American Medical Association and approved by this board. Time beyond one year spent in the above government agencies may be credited to experience providing the candidate has been regularly assigned to a service in neurology or psychiatry.

Training and experience credit toward requirements for examination will be granted for military duty in present emergency under certain conditions. This policy relates to active military medical duty since July 1, 1950. One year of training credit will be granted for one year spent in full-time psychiatric and/or neurological duties. Additional training credit will be granted for that amount of time spent in approved training programs. Experience credit will be granted for any remaining time spent in full-time psychiatric and/or neurological assignments. Double credit will not be granted for any single period of time. For military duty after Jan. 1, 1954, only experience credit will be granted for full-time psychiatric and/or neurological duties. Training credit will be granted for residency assignments in regularly approved training programs.

EXAMINATIONS

Dates and places of examinations are set by the board at its discretion and shall be announced in THE JOURNAL, in the *American Journal of Psychiatry*, in the *Journal of Nervous and Mental Diseases*, and in the *A. M. A. Archives of Neurology and Psychiatry*.

Though the purpose of the examination is to test the competence of the candidate in psychiatry or neurology or both, it must not be forgotten that both these medical disciplines constitute part of the broad field of general medicine. The board requires some proficiency in neurology on the part of those it certifies in psychiatry, and vice versa, but examines the candidate in accordance with the certificate he seeks. The examinations will be of such type that no adequately trained person will fail, and yet they will be sufficiently searching so that the specialist in fact may be separated from the specialist in name. The practical examination will include the examination of patients under the supervision of the examiner. The manner of examining patients and the reasoning and deductions therefrom will constitute an important part of the examination. Oral and practical examinations will be given in the basic sciences with special regard to their clinical implications. Written examinations may be given at the discretion of the board. The examination for certification in psychiatry will differ from the examination for certification in neurology.

PAYMENT OF FEES

The candidate on filing his application shall accompany it with an application fee of $35 which is not returnable. If a preliminary written examination has been decreed, an additional $25 fee will be required at the time of the applicant's acceptance. When notified by the secretary that he is eligible for the oral and practical examination, the candidate shall send to the secretary an examination fee of $65. A candidate who has been certified in either psychiatry or neurology, and who has been admitted to supplementary examination for the other certificate, shall pay an additional examination fee of $65.

A candidate who has failed in one examination is eligible for reexamination within one year on payment of a reexamination fee of $50. After the year has elapsed he must submit a new application and pay new application and examination fees. If he fails the reexamination, he may, after two years have elapsed, submit a new application and $35 fee, present evidence of further training, and pay an examination fee of $65.

A candidate who fails in one or two subjects is eligible for reexamination in those subjects within one year on payment of a reexamination fee of $50. After the year has elapsed he *must submit a new application* and pay new application and examination fees and repeat the entire examination. If he fails the reexamination, he may apply again for the complete examination after two years on submission of evidence of further training and on payment of an application fee of $35. If admitted to the examination, he must pay a new examination fee of $65.

Any candidate who finds himself unable to attend an examination to which he has been admitted and does not notify the secretary at least six weeks before the date of the examination will forfeit his examination fee. Any candidate who fails to appear for examination within a period of three years following the date of notification of eligibility for examination shall be required to submit a new application and pay the attendant fee. If a candidate dies before his certificate is issued, all fees will be returned to his estate.

AMERICAN BOARD OF RADIOLOGY

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CERTIFICATES

A certificate will be issued to each candidate who meets the requirements of the board, to the effect that the holder of the certificate has had adequate training in radiology and has successfully fulfilled the requirements of the board.

A certificate granted by this board does not of itself confer, or purport to confer, any degree, or legal qualifications, privileges, or license to practice radiology. Certificates of the board shall be issued on one of four forms:

1. A certificate to the effect that the applicant has been found qualified to practice radiology in all of its branches.

2. A certificate to the effect that the applicant has been found qualified to practice radiology in one or more of the following special fields: (*a*) roentgenology, (*b*) diagnostic roentgenology. (*c*) therapeutic radiology.

3. A certificate to the effect that the applicant has been found qualified to practice radiological physics in all of its branches.

4. A certificate to the effect that the applicant has been found qualified to practice radiological physics in one or more of the following special fields: (*a*) roentgen-ray and gamma-ray physics, (*b*) medical nuclear physics.

DEFINITIONS

For the purposes of this board, the following definitions are adopted:

1. Radiology is that branch of medicine that deals with the diagnostic and therapeutic application of radiant energy including roentgen rays and radium.

2. Roentgenology is that branch of radiology that deals with diagnostic and therapeutic application of roentgen rays.

3. Diagnostic roentgenology is that branch of radiology that deals with the diagnostic application of roentgen rays.

4. Therapeutic radiology is that branch of radiology that deals with the therapeutic application of roentgen rays, radium, and radioactive isotopes.

5. Radiological physics is that branch of physics that deals with the medical application of roentgen rays, gamma rays, radioisotopes, nuclear reactions, and particle accelerators.

6. Roentgen-ray and gamma-ray physics is that branch of radiological physics that deals with roentgen rays and gamma rays.

7. Medical nuclear physics is that branch of radiological physics that deals with radioisotopes, nuclear reactions, and particle accelerators.

GENERAL REQUIREMENTS AND QUALIFICATIONS

Each applicant for admission to the examination for a certificate in radiology shall be required to present evidence that he has met the following standards:

1. Satisfactory moral and ethical standing in the profession.

2. A license to practice medicine in the state or county in which he resides.

3. The applicant holds himself out to be a specialist in radiology or one of its branches as defined under "definitions" and devotes his time to the practice of radiology or one of its branches.

4. He is a citizen of the United States or Canada. Candidates from other countries must be permanent residents of that country and citizens thereof.

PROFESSIONAL EDUCATION

1. Graduation from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association.

2. Completion of an internship of not less than one year in a hospital approved by the same Council.

SPECIAL TRAINING

1. After completion of the internship there shall be a period of special training in radiology of not less than three years in clinics, hospitals, or dispensaries recognized and approved by the American Board of Radiology and the Council on Medical Education and Hospitals of the American Medical Association as competent to provide a satisfactory training in radiology. This period of specialized training shall include:

(*a*) Graduate training in pathology, radiation physics, and radiobiology. A period of six months full-time training in pathological anatomy is recommended but where this is not possible to arrange, the student during his three-year training period, may, by attending pathological conferences and postmortem examinations, and by studying removed tissues, receive adequate training in pathology. It is recommended that radiation physics be taught by a combination of didactic lectures, practical examples, and direct clinical demonstrations.

(*b*) An active experience (residency) of not less than 30 months in an institution, the radiological department of which is recognized and approved by the American Board of Radiology and the Council on Medical Education and Hospitals of the American Medical Association as capable of providing satisfactory training.

(*c*) Examination in the basic sciences of radiology as well as the clinical aspects thereof. These examinations should be given by the student's instructors in order to allow those responsible for his training to certify to the board that he is adequately prepared.

APPLICATIONS

The board desires to appraise the candidate's educational opportunities (premedical, medical, and radiological), the ability of his instructors, his hospital and teaching positions, his original investigations, his contributions to radiological literature, his membership in medical societies, and his local and general reputation.

For this purpose, application must be made on a special blank which may be obtained from the secretary. No application will be considered unless made on the regular application blank. This application shall be forwarded with the required data, two unmounted photographs, and the fee of $100 at least six months before the date of the examination.

FEE

A fee of $100 must accompany each application blank. This fee will not be returned, and no application will be considered until the fee is received. This fee has been carefully computed and is used entirely for administrative purposes. As the number of candidates decreases, it may become necessary to raise the fee.

EXAMINATIONS

Each year the board will hold two examinations. The first will be in the spring and the second examination will be held in conjunction with the annual meeting of the American Roentgen Ray Society or the Radiological Society of North America.

For the present, examinations consist of practical and oral examinations, although written examinations may be added later. The examinations are designed to test the candidate's fitness to practice radiology or one of its branches as a specialty. The board will endeavor to adapt this examination to the candidate's experience and years of practice. It will try especially to ascertain the breadth of his clinical experience, his knowledge of the basic sciences of radiology, and likewise his knowledge of the recent literature on radiology, and his general qualifications as a specialist in this branch of medicine.

The examination consists of tests in film interpretation and an oral examination in pathology, physiology, radiophysics, and radiobiology, as well as the clinical application of roentgen rays, radium, and radioactive isotopes. The applicant is also examined in "professional adaptability," in an attempt to ascertain his attitude toward his fellow practitioners and his patients.

Whenever an applicant fails to pass the examination, the board, if requested, will make suggestions as to suitable courses of instruction for the purpose of overcoming his deficiences.

REEXAMINATIONS

If the candidate fails in the first examination he will be admitted to a second examination after one year has elapsed, but not after more than three years. He must give 90 days' notice of his intention to appear for reexamination and pay an additional fee of $50. If a candidate who has failed does not appear for reexamination before the expiration of three years, he will be required to make a new application and pay an additional fee of $100.

A candidate having failed twice may, after one year has elapsed, file a new application, which must be accompanied by the fee of $100.

AMERICAN BOARD OF SURGERY

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John J. McKeown Jr., Assistant Secretary, Philadelphia.

GENERAL QUALIFICATIONS

1. Moral and ethical standing in the profession and in the community which is satisfactory to the board.
2. Engagement in the practice of surgery.

PRELIMINARY TRAINING

1. Graduation from an approved medical school in the United States or Canada or from medical schools acceptable to the board in other countries.
2. Completion of an internship (straight or rotating) of not less than one year in a hospital approved by the Council of the A. M. A. or its equivalent in the opinion of the board.

SPECIAL TRAINING

The American Board of Surgery is guided by the evaluation of residency training programs made by the conference committee on graduate training in surgery.

The board interprets the term "general surgery" in a comprehensive manner and expects candidates to have knowledge of the basic principles applied in the treatment of fractures, trauma, head injuries, and of the more common procedures in plastic, gynecologic, orthopedic, thoracic, and urologic surgery. Some elasticity in the training programs will be allowed individuals with preference for specialized fields, experimental surgery, or research. In such programs the integration of basic sciences, particularly pathology, with clinical training is superior to formal courses.

Requirements for examination are subject to change and in each case are as published in the board's most recent Booklet of Information at the time application is submitted.

GROUPS 1 AND 2

The requirements for examination may be fulfilled by either of the two programs outlined below. Both of these educational programs are considered to be minimal in attaining their purposes.

The board may, at its discretion, require that a satisfactory operative report be filed before the candidate's eligibility for examination is considered. Such a report may be made by a member of the board, Founders Group, or one certified by examination designated to be present during a major operative procedure performed by the candidate.

Group 1.—Completion of a graded residency in surgery of at least four years in an institution or institutions acceptable to the board and approved for four years of training by the conference committee on graduate training in surgery. The final year of the program must have been spent in the capacity of senior or chief resident in surgery.

If the hospital residency training is for a longer period than four years the candidate who completes four years without assuming the responsibilities of the final year cannot be considered in the Group 1 category. Such a candidate must qualify as in Group 2 after a total of at least five years, one year of which may be spent in practice limited to surgery carried out under acceptable supervision.

Credit will be granted for surgical internship to a candidate who has completed one other year of acceptable internship when the surgical internship is part of a graded residency approved for four years by the conference committee.

Group 2.—Completion of a graded residency in surgery of at least three years in an institution or institutions acceptable to the board and approved for three years of training by the conference committee on graduate training in surgery. The final year must have been spent in the capacity of senior or chief resident in surgery.

Credit will be granted for surgical internship to a candidate who has completed one other year of acceptable internship when the surgical internship is part of a graded residency approved for three years by the conference committee.

Two additional years of training beyond the three years of residency to complete a total of five are necessary to meet the requirements for examination. These may have been spent (*a*) in practice limited to surgery carried out under acceptable supervision, (*b*) in the study of surgery and the basic sciences in an approved graduate school of medicine, (no more than one year's credit is granted for work in basic sciences), and (*c*) in surgical training acceptable to the board in the federal services.

By "acceptable supervision" is meant an arrangement with a preceptor suitable to the board who will assume responsibility for the candidate's further training. The supervising surgeon will be required to inform the board in writing of his acceptance of the responsibility. The supervising surgeon must vouch for the candidate's integrity, surgical judgment, and technical skill. Sufficient operative work performed by the candidate under supervision to fortify residency training must be attested to by the preceptor in a statement submitted to the board at the time the candidate makes application for examination. Before considering eligibility of the candidate for examination the candidate will be required to submit to the board a list of the operative procedures performed by him during the period of supervised practice of surgery. The acceptance of supervised practice in the fulfillment of part of the board's requirements is contigent upon the candidate having had adequate clinical opportunities with considerable responsibility in the care of patients, including the performance of major operative procedures under supervision.

The study of surgery and the basic sciences in an approved graduate school of medicine must be full time and extend over a period of not less than nine months. No more than 12 months' credit will be extended for such study. Six months' credit may be allowed for a single basic science such as pathology, physiology, or anatomy. Credit not to exceed one year may be extended for surgical research. Such graduate work will not be credited as part of a three year residency program.

BASIC SCIENCES

A fundamental concept of an approved residency in general surgery requires that the program provide for properly organized, integrated and progressively graded clinical training in the specialty. This concept requires a continuity of clinical experience under the supervision of the surgical staff of the hospital or hospitals in which such training is conducted. Accordingly, the American Board of Surgery while recognizing the value of formal courses in the basic sciences, will not accept these courses as part of a three or four-year program, in lieu of clinical experience. When provision is made for the resident to attend such courses, they will be accepted by the American Board of Surgery as credit toward the practice requirement, in addition to an approved three-year residency (Group 2 candidates). An approved four year residency may include a research project or an assignment to a basic science department such as pathology provided this is an integral part of the residency program. The final year of a four year residency, however, must be spent in clinical surgery in the parent institution.

MILITARY CREDIT

Credit may be extended to those candidates who have served in military hospitals other than those approved for residency training provided that the candidate has had a satisfactory surgical assignment with adequate and diversified clinical materal and provided further that his work in surgery is carried out under the supervision of a surgeon acceptable to the board. Any credit extended in the latter category will be considered preceptorship credit and not residency credit.

LICENSE TO PRACTICE

The board requires, prior to issuance of a certificate, that candidates who are citizens of the United States or Canada have a valid license to practice in the nation of permanent residence except in those situations in which a license to practice is not required, such as the practice of surgery by commissioned officers in the Army, Navy, or public health services of these countries.

REQUIREMENTS FOR FOREIGN-BORN AND FOREIGN-TRAINED APPLICANTS

Candidates must have completed at least the three year residency requirements in an approved hospital in the United States or Canada. In addition, they are required to have a valid license to practice in the nation of their permanent residence. The examination committee may, in individual instances, accept foreign training as the equivalent of acceptable residency training in the United States.

APPLICATIONS

Prospective candidates for examination by the board should carefully read the board's requirements as set forth in its Booklet of Information. If, after becoming familiar with the requirements, the candidate needs advice as to his training, such may be had by writing to the board's office. When a candidate's training seems to meet the requirements, an application blank will be mailed. The processing of the completed application requires a minimum of three months by the board's office. The candidate will then be notified by the secretary as to his acceptability for examination, his deferment, or his ineligibility.

The eligibility of a candidate whose training in some respects does not conform to requirements published above will require the action of the examination committee of the board, which may delay the candidate's notification of acceptability. Every candidate's final acceptability for examination is based not only upon the evaluation of his training qualifications, but upon information available to the board concerning his professional ability as a surgeon and his ethical standing in the community.

Candidates are required to complete their training and meet all other requirements of the board before submitting an application for examination. Candidates are notified of their eligibility for the part 1 examination as soon as their applications have been approved and are sent a list of centers from which they may select the center of their choice.

THE FOUNDERS GROUP

The Founders Group, to which were admitted those who had already amply demonstrated their fitness as trained specialists in surgery, was closed in January, 1940.

EXAMINATIONS

The qualifying examination is divided into part 1 (written) and part 2 (clinical, bedside, and laboratory). In both of these, as previously stated, a knowledge of the practical application of the sciences fundamental to surgery is required.

Part 1.—The examination is given simultaneously in as many centers throughout the United States as the board may determine suitable for the purpose and in certain military centers abroad. It is held twice a year—in the spring and in the fall.

Requests for a particular center should be made to the board's office well in advance of the date set for examination.

The examination in part 1 is of the objective, multiple-choice type, and covers a half-day session. This examination is designed to cover general surgical problems including the application of the basic sciences of surgery to these problems. Questions are of various types, and include case histories, questions indicating ability in judging cause and effect, and questions illustrating comparisons and relationships. The tests are written by members of the board with the aid of test specialists of the educational testing service.

Part 2.—The examination is conducted by members of the board and selected diplomates in various centers in the United States.

The part 2 examination is oral and practical. The schedule is arranged somewhat as follows:

8:15 A.M.—Registration

9 A.M. to 1 P.M.—Clinical surgery (diagnosis, management, and the application of physiology, biochemistry, and bacteriology). The interpretation of roentgenographic studies also may be included.

2 to 5 P.M.—Applied anatomy and surgical pathology.

GRADES

A candidate must receive a grade of 75% in part 1, and a grade of 75% in all three subjects, clinical surgery, surgical pathology, and applied anatomy in part 2, to be entitled to the board's certificate.

REEXAMINATIONS

Part 1.—Candidates who fail part 1 are required to wait one year before becoming eligible for reexamination.

Part 2.—Candidates who fail part 2 in clinical surgery or who fail both anatomy and pathology are required to wait one year before establishing eligibility for reexamination. Those who fail only anatomy or pathology are required to wait six months. The board expects that during this period the candidate will make a reasonable effort to prepare himself in the subject or subjects in which he has failed.

Should a candidate fail a reexamination in part 1 or part 2, the examination committee will consider an appeal for further examination privileges after the lapse of two years, provided satisfactory evidence of further preparation for examination is submitted. The board, however, for good and sufficient reason, may deny a candidate the privilege of further examination.

FEES

The fee for examination is $150 payable as follows: $25 for registration, $50 for part 1, and $75 for part 2.

Candidates are required to pay a fee of $50 for reexamination in part 1, $75 for reexamination in part 2, in its entirety, and $25 for reexamination in a single subject.

This board is a nonprofit organization. All fees will be used, after a reasonable amount is set aside for necessary expenses, to aid in improving existing opportunities for the training of surgeons. The members of the board serve without remuneration.

CERTIFICATE

After meeting the requirements for eligibility and passing the examinations, a certificate attesting to a candidate's qualification in surgery will be issued by the board, signed by its officers.

REVOCATION OF CERTIFICATE

Any certificate issued by the board shall be subject to revocation at any time in case it shall determine in its sole judgment, that a candidate who has received a certificate was not properly qualified to receive it.

CERTIFICATION IN THORACIC SURGERY

Diplomates of the American Board of Surgery wishing to become certified in thoracic surgery are advised to communicate with the secretary of the Board of Thoracic Surgery, Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2. This board is an affiliate of the American Board of Surgery.

BOARD OF THORACIC SURGERY

(An Affiliate of the American Board of Surgery)

Richard H. Sweet, Chairman, Boston.
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FUNCTIONS OF THE BOARD

1. To select Founder Members. For this group, surgeons of the United States and Canada were chosen who had made meritorious contributions to thoracic surgery.

The Founders Group was kept open for two years after organization of the board.

It was officially closed April 14, 1951.

2. To conduct examinations of satisfactory candidates who seek certification by the board.

3. To improve the opportunities for the training of thoracic surgeons.

4. To set up principles of education to guide young surgeons who desire to prepare themselves for proficiency in thoracic surgery.

5. To issue certificates of qualification to all those meeting the board's requirements.

REQUIREMENTS

1. Certification by the American Board of Surgery.

2. Two years' training in thoracic surgery approved by the Board of Thoracic Surgery, or meritorious contributions to thoracic surgery. One of these two years may be spent during the four years of training in surgery required by the American Board of Surgery.

3. Written, oral, and practical examinations.

DEFINITION OF WHAT IS CONSIDERED ACCEPTABLE TRAINING IN THORACIC SURGERY

To qualify for the examination in thoracic surgery, the candidate shall have had two years of training in an active, well-integrated thoracic surgical clinic or clinics, or the equivalent amount of thoracic surgical training, on a mixed service consisting of thoracic and nonthoracic surgical cases. Adequate training in both the tuberculous and nontuberculous aspects of thoracic surgery is expected. In order to obtain this objective, combined residencies between institutions of different types may be advantageous. It is also required that the candidate be familiar with the basic sciences as related to thoracic surgery. Under exceptional circumstances certain surgeons may, by virtue of recognized proficiency in the surgical treatment of thoracic diseases, qualify for the examination at the discretion of the board.

APPLICATIONS

Prospective candidates desiring to apply for examination should consider whether they are able to meet the minimum requirements of the board. They should then submit a letter to the secretary's office outlining briefly their training and experience in thoracic surgery and should ask for an application form. An application form will not be sent unless evidence is submitted in a letter indicating that the prospective applicant appears to meet the minimum requirements.

EXAMINATIONS

The qualifying examinations are divided into two parts. Part 1 is written, and part 2 is an oral examination in clinical surgery, roentgenogram interpretation, and pathology.

Part 1.—This examination will be given simultaneously at least once a year in as many centers throughout the country as the board may determine suitable for this purpose.

Part 2.—In order to be eligible for part 2 a candidate must have successfully completed part 1. Examinations in part 2 are conducted in certain centers of the country selected by the board. After having passed part 1, a candidate must appear for part 2 within two years unless excused for due cause by the board.

REEXAMINATIONS

Those persons who fail part 1 or part 2 will be required to wait one year before they can retake the part which they failed. Those who fail twice will be required to wait for a period of two years. Candidates who are unsuccessful after three attempts will be required to wait three years before requesting reconsideration. The board may at its discretion deny the candidates the privilege of reexamination.

Candidates declared eligible but who fail to exercise the examination privilege within three years of the date of filing the application will be required to file a new and current application and pay a new examination fee. Also, a candidate who has failed in an examination (part 1 or part 2) and who does not apply for reexamination within three years shall be required to make a new application and pay a new examination fee.

FEES

For the special examination in thoracic surgery and the issuing of a certificate, the fee will be $100. Fifteen dollars of this fee is to accompany the application and will be considered as a registration fee. It is nonreturnable to the applicant in case he is disapproved for examination.

The fee for reexamination will be $50.

AMERICAN BOARD OF UROLOGY

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PURPOSES OF THE BOARD

The first objective of the American Board of Urology is to render better service to the public by ascertaining the competency of any physician or surgeon who is specializing, or who wishes to specialize, in the field of urology. It will investigate the curricula of medical schools and will encourage adequate facilities for graduate instruction in urology, thus elevating the standards and advancing the cause of urology.

FUNCTIONS OF THE BOARD

A. The board will arrange and conduct examinations testing the qualifications of volunteer candidates.

B. The board will grant and issue certificates to accepted candidates duly licensed by law. It also holds the power to revoke the same.

C. The board will endeavor to serve the public, hospitals, medical schools, medical societies, and practitioners of medicine and surgery by preparing lists of urologists whom it has certified.

LIMITATIONS OF FUNCTIONS OF THE BOARD

The conferring of the degrees doctor of medicine or bachelor of medicine remains with the universities, where it belongs. This board makes no attempt to control the practice of urology by license or legal regulation and in no way interferes with or limits the professional activities of any duly licensed physician.

A list of approved residencies for training in urology may be found in the Internship and Residency Number of THE JOURNAL of the American Medical Association.

Training programs in urology are approved by a residency review committee consisting of members from this board and representatives from the Council on Medical Education and Hospitals of the American Medical Association.

REQUIREMENTS FOR ALL APPLICANTS

A. Application for certification must be made on a special form. This will be provided by the secretary and must be returned to him accompanied by other required data and credentials and by $50 of the examination fee.

B. The applicant must have graduated from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association and must have completed an internship of not less than one year in a hospital approved by the same council.

Requirements of graduates of foreign medical schools shall conform to and be similar to the requirements as demanded of the applicants for the accepted medical schools in the United States and Canada. Such applications will be considered by the full board on individual merits.

C. The applicant must establish in a manner satisfactory to this board that he is a physician duly licensed by law to practice medicine, that he is of high ethical and professional standing, and that he is a member of the county district or territorial medical society of his place of practice.

D. The applicant must establish that he has received special graduate training as follows:

1. An approved internship of at least one year.
2. One year in the basic sciences or clinical studies basic to urology, or one year residency in general surgery or internal medicine.
3. An approved graduated three year residency in urology leading to competency in all its phases.

E. The applicant must have an additional period of not less than two years in the practice of urology in the city of his office or place of practice.

F. The applicant must assure the board that he is engaged in the practice of urology and intends to continue to be so engaged.

G. Applicants whose postinternship training started prior to July 1, 1955, will be required to have a total of three years residency, two years of which must have been in approved graduated training in urology and one year preceding in studies consisting of clinical studies basic to urology. These may consist of general surgery or internal medicine.

Applicants who started postinternship training after July 1, 1955, but before July 1, 1957, may fulfill their requirements by completing a four year training consisting of:

1. One year in general surgery, a two year approved graduated urologic residency and one initial year in the basic sciences or clinical studies underlying urology, or
2. One year in general surgery, two years formal training in urology, described in 1 above, and one year of credit for two years of a preceptorship, approved by the board.

FEE

The examination fee is $150. (This fee will be increased when the expense of the examinations and other activities of the board demand.) Fifty dollars must accompany the application. If, upon investigation, an applicant is found lacking in any of the requirements stated above, he will be notified that he is ineligible for examination. One hundred dollars must be paid when the application has been processed. Neither fee shall be returnable in any event.

Applications for certification shall be examined by the credentials committee and reviewed by the board. When additional data are required to complete the application, these will be requested by the secretary.

If a candidate fails, he will be permitted a second examination after one year or within three years without additional fee, but he must give sixty days' notice of his intention to appear for reexamination. After an applicant has failed twice he may file a new application and pay a second fee.

A candidate who has been failed twice in any part of the examinations may be required to have additional training in accordance with recommendations from the credentials committee and from the full board before he may be permitted further examination.

REQUIREMENTS FOR CERTIFICATION

The requirements for certification include: evidence of hospital practice including the presentation of reports of 25 representative (not necessarily consecutive) major urologic cases from practice, which must contain all items essential for diagnosis, therapy, prognosis, results of treatment, etc.; a written examination; pathology and oral clinical examinations.

A. Evidences of Hospital Practice and Case Reports:

An index, in consecutive order, of all major and minor urologic surgery (including endoscopy) done during the last two years of practice must be presented. This index must be verified by the various hospital administrators.

The reports of 25 major urologic cases must be representative reports from private practice. These reports must be typewritten on 8½ by 11 paper and in duplicate, but need not be on any special form. Please file the duplicate in your own office. This second copy will be called for when and if it is needed.

Complete index lists must accompany the reports. If they are obtained from more than one hospital a separate index list of each group should be provided. These lists must state the operator's name at the head of each page, the name (or initials) of the patient, the hospital number, and the name and date of operation. Statements from the superintendents of the hospitals attesting that the candidate was the operator must be included.

The applicant must personally prepare the case reports, remembering that they are documentary evidence of his ability and that the material in them and the manner of presentation are important evidences of his competence as a urologist.

The deadline for the receipt of case reports each year is Sept. 1. The case reports should be prepared as follows:

1. Heading, including identification of patient, hospital number and name or initial, age, marital status, sex, occupation, diagnosis, dates of hospitalization, date and name of operation, and outcome.
2. Complete history, including chief complaint, present and past history, family history, review of systems, etc.
3. Complete physical examination, including temperature, pulse, respiration, and blood pressure.
4. Initial laboratory and x-ray examinations.
5. Admitting diagnosis, based on above, with reasons for making this diagnosis.
6. Indications for further management and description of same in chronologic order together with findings and outcome, as they occurred. This should include detailed description of all subsequent laboratory and x-ray findings, final preoperative diagnosis and reasons for same, and major and minor surgical procedures. This should include also a detailed description of all other treatment and findings such as administration of drugs and fluids, morbidity, complications, consultations, use of special drainage, etc. A detailed description of the postoperative course including complications and outcome should be given. If autopsy is done this should be reported.
7. A follow-up of patient's course after dismissal from the hospital.
8. Final summary of the case. This must include the candidate's interpretation of the record in terms of pathology; the basis for the diagnosis; the facts that determined the treatment prescribed, whether surgical or otherwise; the course of treatment to be pursued following discharge from the hospital or clinic; and a critical discussion of the knowledge gained from the proper handling of the case, or from errors made (if any) in the diagnosis and method of treatment.
9. The entire record should be compiled as chronologically as possible and must contain dates of all data.

B. Written Examination:

The written examination is designed to test the candidate's preparation in and his knowledge of the whole field of urology, including the subjects: clinical urology, pathology, anatomy, physiology, embryology, bacteriology, physiological chemistry, and endocrinology. These may be held on certain dates simultaneously in different parts of the country at places convenient for candidates.

C. Pathology:

The examination in pathology will consist of the identification of gross specimens and of sections of tissue observed through the microscope. It will be held at the time of the oral examination.

D. Oral-Clinical Examination:

This will consist of discussions of common urologic conditions. The subjects forming the basis of this examination are urography; diseases of the genital organs, including the prostate; diseases of the urinary bladder; and diseases of the ureters and kidneys. The examination may deal directly with data found in the case reports which the candidate has submitted. It will ascertain the candidate's familiarity with recent literature, the breadth of his clinical experience, and his general qualifications for practice in the specialty of urology.

The professional adaptability of each candidate will be investigated in an attempt to determine his ethical conduct and his attitude toward his patients and fellow practitioners.

FINAL ACTION OF THE BOARD

Final action concerning each applicant is made by the entire board and is based on the applicant's training, his professional record, his attainments in the field of urology, and the results of the examinations. Any competent urologist with the required training will have no difficulty obtaining the board's certificate. This board is organized not to prevent qualified urologists from obtaining certificates but to assist them in becoming recognized in their communities as men competent to practice in the special field of urology.

REVOCATION OF CERTIFICATE

Certificates issued by this board are subject to the provisions of the articles of incorporation and the bylaws. According to article IX, section 4, of the bylaws, "Each certificate shall be subject to revocation in the event that:

A. The issuance of such certificate or its receipt by the physician so certified shall have been contrary to, or in violation of, any provision of the certificate of incorporation of this, the American Board of Urology, or of the bylaws; or

B. The physician or party certified shall not have been eligible to receive such certificate, irrespective of whether or not the facts constituting him so ineligible were known to, or could have been ascertained by, the directors of the board at the time of the issuance of such certificate; or

C. The physician or party so certified shall have made any mis-statement of fact in his application for such certificate or in any other statement or representation to the board or its representatives; or

D. The physician so certified, at any time while continuing to practice, shall cease to practice urology; or

E. The physician so certified shall at any time have neglected to maintain the degree of competency in the practice of the specialty of urology as set up by the board, and shall refuse to submit to reexamination by the board.

The board of trustees of this corporation shall have the sole power, jurisdiction, and right to determine and decide whether or not the evidence or information before it is sufficient to constitute one of the grounds for revocation of any certificate issued by this corporation. The board of trustees may, however, in its discretion, require any physician so certified to appear before the board of trustees or before any one or more of them or before any individual or individuals designated by the board of trustees, upon not less than 20 days written notice, and to show cause, at the time and place specified in such notice, why his certificate should not be revoked upon any one or more of the above-described grounds specified in such notice. The failure of any physician so notified to appear as required in such notice, without due excuse deemed sufficient to the board of trustees, shall constitute, ipso facto, cause for revocation of his certificate. The decisions of the board of trustees relating to all matters under this section 4 shall be final and binding.

Information regarding the Advisory Board for Medical Specialties and the 19 Examining Boards for Medical Specialties, which appears in this issue, and the data included in the Internship and Residency Number, Sept. 24, will be published in the Directory of Approved Internships and Residencies as a separate reprint.

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ESOPHAGEAL VARICES

Esophageal varices develop secondarily to partial or complete obstruction of the portal blood flow at the junction of the esophagus and cardia of the stomach between the coronary vein, a branch of the portal circulation, and the esophageal veins, branches of the azygos vein, of the systemic circulation. Portal hypertension may be one of two types, intrahepatic or extrahepatic, or a combination of both. Apparently, the portacaval shunt created by the natural anastomosis of the two systems at the gastroesophageal junction is inadequate to prevent increased intraportal tension and the consequent development of esophageal varices.

Chiles and his co-workers [1] at the Mayo Clinic found that, in a study of 80 cases of ruptured esophageal varices in which hemorrhage led to death, rupture was caused in 39% of the cases by the increased hydrostatic pressure within the varix and in 50% by ulceration of the varix. In the majority of the cases, ulceration appeared to be a complicating factor that hastened the impending perforation of the vein. Hemorrhage from the esophageal varices, particularly in portal hypertension with cirrhosis of the liver, is a frequent cause of death, second only to peptic ulcer as a cause of massive upper gastrointestinal bleeding.

Attempts at lowering the tension in the portal system by ligation of the splenic artery, the hepatic artery, and splenic and hepatic arteries proved unsatisfactory in controlling the bleeding and at the same time it carried a high operative risk. The method of compressing the varices by balloon tamponade, first reported by Westphal in 1930 as quoted by Linton and Warren [2] and by Rowntree [3] in 1947 proved to be more successful. Thus, Sengstaken and Blakemore [4] reported in 1950 on 30 patients with an acute hematemesis successfully treated with a nasogastric tube bearing a reinforced balloon. The balloon tamponade, Linton and Warren point out, is also useful in differentiating the source of bleeding, since, if the cardioesophageal tamponade controls the bleeding, then the source of it is esophageal varices and not a peptic ulcer of the stomach or duodenum. The removal of the tube, however, will not infrequently give rise to further bleeding. Linton and Warren, therefore, regarded this method as a temporary means to be followed by transesophageal suture of the varices. Immediate or early suturing of the ruptured varix permits adequate time in which to prepare the patient for the major surgical intervention of constructing some type of portacaval shunt.

Crile [5] considered suturing the esophageal veins as a definitive treatment of bleeding varices. He reported in 1950 on seven patients with severe bleeding from esophageal varices successfully treated by the operation of transesophageal ligation of the varices. He believed that this treatment was adequate in controlling bleeding in the extrahepatic blocks of the portal or the splenic veins. Most workers in this field feel that the definitive treatment of bleeding esophageal varices should be one capable of permanently lowering the tension in the portal system. This could be accomplished by anastomosis between the portal vein and the inferior vena cava or by an end-to-side anastomosis of the splenic vein to the renal vein. Under these circumstances, a large volume of blood will pass from the relatively high-pressure portal system into the low-pressure caval system via the shunt. Linton [6] reported on 77 patients who survived the formation of a portacaval shunt; 8 of these patients are now dead, and the remaining 69 (97%) are alive and in good health. Blakemore [7] reported an operative mortality of 17.8% for a series of 140 cases of shunt operation.

Cooley and DeBakey [8] proposed a rather radical operation consisting of an extensive subtotal resection of the esophagus as a definitive treatment for bleeding esophageal varices. The operation was carried out on three patients, two of whom have survived and are doing well.

Whatever surgery is contemplated, the surgeon must bear in mind the risk presented by the functional status of the liver and the deleterious effect on the liver of the long-standing portal hypertension. The improvement in the operative results in the last few years is due to achievements in the medical treatment of cirrhosis of the liver and the knowledge that a cirrhotic liver fortified with proteins, carbohydrates, and vitamins, if protected against anoxia, is far more resistant to decompensation following surgery than a liver not so supported. The availability of the whole blood plasma and human albumin for the correction of anemia, restoration of blood volume, restitution of depleted proteins, achievement of potential control of infection, and control of blood clotting are important factors favoring success with venous shunt procedures.

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[1] Chiles, N. H.; Baggenstoss, A. H.; Butt, H. R., and Olsen, A. M.: Esophageal Varices: Comparative Incidence of Ulceration and Spontaneous Rupture As a Cause of Fatal Hemorrhage, Gastroenterology **25**: 565-573 (Dec.) 1953.

[2] Linton, R. R., and Warren, R.: The Emergency Treatment of Massive Bleeding from Esophageal Varices by Transesophageal Suture of These Vessels at the Time of Acute Hemorrhage, Surgery **33**: 243-255 (Feb.) 1953.

[3] Rowntree, L. G.; Zimmerman, E. F.; Todd, M. H., and Ajac, J.: Intraesophageal Venous Tamponage: Its Use in a Case of Varical Hemorrhage from the Esophagus, J. A. M. A. **135**: 630-631 (Nov. 8) 1947.

[4] Sengstaken, R. W., and Blakemore, A. H.: Balloon Tamponage for the Control of Hemorrhage from Esophageal Varices, Ann. Surg. **131**: 781-789 (May) 1950.

[5] *Crile, G., Jr.: Treatment of Esophageal* Varices by Transesophageal Obliteration, Surg., Gynec. & Obst. **96**: 573-576 (May) 1953.

[6] Linton, R. R.: Bleeding Esophageal Varices and Their Surgical Treatment, Maryland M. J. **2**: 400-411 (Aug.) 1953.

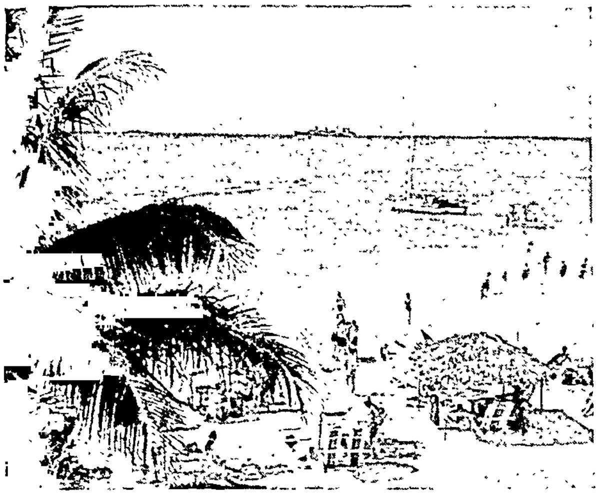
[7] Blakemore, A. H., and Lord, J. W., Jr.: The Technic of Using Vitallium Tubes in Establishing Portacaval Shunts for Portal Hypertension, Ann. Surg. **122**: 476-489 (Oct.) 1945.

[8] Cooley, D. A., and DeBakey, M. E.: Subtotal Esophagectomy for leeding Esophageal Varices, A. M. A. Arch. Surg. **68**: 854-871 (June) 54.

ORGANIZATION SECTION

INVITATION TO NASSAU

Members of the American Medical Association have been invited to meet with the Bahamas Medical Association at the Jungle Club in Nassau on Wednesday, Dec. 7, following the A. M. A. Clinical Meeting in Boston. An official tour to Nassau has been arranged for members of the American Medical Association for the week of Dec. 3-10, permitting physicians to accept the Bahamian invitation. Arrangements for the tour have been made cooperatively by United Air Lines, British Overseas Airways Corporation, Nassau Development Board, and International Travel Service, Inc. (Chicago). Tour folders are available upon request by writing to A. M. A. Nassau Tour Headquarters, 35 E. Monroe St., Chicago 3. The itinerary for the official tour to Nassau is as follows:



Paradise Beach on Hog Island across Nassau Harbor.

Friday, Dec. 2. Bon voyage buffet luncheon in the Bay State Room of Boston's Hotel Statler, followed by an afternoon flight to New York. Members of the tour will stay at the Waldorf-Astoria Hotel.

Saturday, Dec. 3. Departure at noon on a British Overseas Airways Stratocruiser, the Bahamian, to arrive in Nassau at 5 p. m. Tour members will stay at the Fort Montagu Beach Hotel.

Sunday, Dec. 4. This day is free of planned activities.

Monday, Dec. 5. In the morning there will be driving in private cars around the island.

Tuesday, Dec. 6. Tour members will board a motor launch for Hog Island, where the bath house and facilities of Paradise Beach will be at their disposal.

Wednesday, Dec. 7. Physicians will have luncheon at the Jungle Club and spend the afternoon with members of the Bahamas Medical Association. Ladies can enjoy the hotel's buffet luncheon, which will be followed by a fashion show displaying Egyptian cottons, English linens, and native straw accessories. The new Montagu Roof Garden will be the setting in the evening for a cocktail party with entertainment. Dinner will be specially arranged around native dishes such as cocoanut-fried chicken, Bahamian conch chowder, and stuffed lobster Nassauvian.

Thursday, Dec. 8. This will be a day of leisure, as will be Friday, Dec. 9.

Saturday, Dec. 10. Alternate departures for Miami via BOAC's new Viscounts. Departure at 10:15 a. m., with arrival at Miami at 11:15 a. m., or a few hours later, with departure at 6:30 p. m. and arrival in Miami at 7:30 p. m.

TRAVELERS TO WORLD MEDICAL ASSOCIATION MEETING

The picture below shows Dr. and Mrs. Dwight H. Murray and Dr. and Mrs. F. J. L. Blasingame prior to their departure for Europe via Scandinavian Airlines. Dr. Murray is the newly elected President of the American Medical Association. Dr. Blasingame is the Vice-Chairman of the Board of Trustees of the A. M. A. They were en route to the World Medical Association meeting in Vienna, Austria, Sept. 20-26.

Left to right: Mrs. Dwight H. Murray, Dr. Murray, Mrs. F. J. L. Blasingame, and Dr. Blasingame.

PUBLIC RELATIONS

Those Difficult Patients

There is a daily parade of people through almost every physician's office. Some of these individuals by their actions and attitudes slow down or bring to a complete halt this orderly procession. These are the patients doctors label as "difficult"—the shoppers, the talkers, the belligerents, and occasionally, those who are dissatisfied. These individuals complicate the task of running an efficient medical office and present definite public relations problems as well. Some are touchy and easily annoyed; others are inclined to become dissatisfied with the doctor or their medical care quickly. It has been found by medical societies that many of the complaints about medicine and the medical profession today are being voiced by such problem patients.

Consequently, even though such patients are trying to the physician, they must be dealt with thoughtfully and with special consideration. What makes certain patients "difficult?" Almost all of them reflect anxiety about their conditions. Some are distrustful of the doctor and suspicious of any medical procedure. Others are unable to cope with trying situations in life and so they take refuge behind physical symptoms. Many are reacting in a negative fashion to their illness and to the position of authority of the physician they have been forced to seek.

Dr. Howard P. Rome of Rochester, Minn., says: "Obviously, the static approach to clinical medicine which treats all patients as though they were simply the noncontributing carriers of diseases or injuries will yield a high percentage of difficult patients. Everything depends upon how the physician responds to the patient's recital of worries, whether with pointed inquiries, a shrugging dismissal of a symptom, or an enigmatic blandness that leaves the patient in an even worse quandary." Dr. Rome believes every patient requires a different method of approach according to the individual's psychology. Certain techniques are involved in these varying approaches. Here are some suggestions from practicing physicians for dealing with difficult patients:

Shoppers.—Every physician—especially a man just setting up practice—is confronted from time to time with "shoppers." These patients move from doctor to doctor, searching for the words they want to hear. Sometimes these individuals are seeking a contradictory diagnosis, sometimes the lowest-priced medical care; sometimes they are not sick at all but are searching for a doctor who will say there is a physical basis for their mental ailments. Should a doctor criticize a diagnosis that another physician made previously, such patients are inclined to seek compensation for the earlier "mistake" or to complain loudly to the neighbors and friends, thus undermining public confidence in physicians. Shoppers should be firmly urged to return to their own doctors, unless they have actually terminated the earlier doctor-patient relationship. Physicians recommend in such cases complete histories be taken, and they warn against talking disparagingly against other physicians.

Talkers.—"Gabby" individuals run on forever if allowed to, taking up more than their share of the doctor's time and sabotaging the appointment schedule. Sometimes, in an early conversation with such persons, the doctor's receptionist can spot a "talker." In some offices, talkers' cards or case histories are marked with a symbol that alerts the physician. Other doctors have their assistants pointedly remind them when bringing in a talker that the next patient will arrive promptly o schedule. The physician must phrase his questions carefully when interviewing such patients, since the mor general his questions the longer the answers will be One doctor says that a firm interruption now and the to get the conversation back on the track can be use without the patient taking offense (talkers are used t being interrupted by others). Some doctors use a concealed buzzer to signal their assistant when it seems impossible to conclude a visit with a talker in a reasonabl length of time. The assistant then enters to say: "Docto I'm afraid you've run overtime. Your next patient ha arrived." Another effective way to cut short length time-consuming conversations with such patients is suggest they return for another appointment to discu their condition. Few patients want to pay for anoth visit just to talk.

Belligerents.—Some patients actually seem to delig in disobeying the doctor's instructions. No matter wh the psychological reasons for their rebellion, the phy cian should try to convince such patients that his orde have merit and are to the patient's best interest. He m have to state firmly: "I will no longer serve as yo physician if you don't follow my orders. I won't be sponsible for what happens if you do not cooperat Often, the doctor should put such a statement in t form of a letter to the patient to protect himself.

Dissatisfied Patients.—The physician whose dissat fied patient brings the grievance directly to him f discussion is fortunate. Generally, such persons co plain loudly to friends and neighbors about their grie ance, but the doctor hears about it only indirectly, if all. When a patient does complain, the physician m listen patiently, even if the complaint seems ridiculo or unjustified. What are the reasons for the complain Is misunderstanding the cause of the trouble? Or is t complaint justified? In many instances the doctor c settle the complaint to the patient's satisfaction after few minutes' discussion. When the patient cannot satisfied, the doctor should suggest the patient put h complaint in writing and submit it to the local medic society's mediation committee for hearing. Such co mittees convince patients that physicians sincerely a trying to settle grievances justly.

In most cases, problem patients can be turned in amiable, cooperative patients. Each difficult patient pr sents a challenge to a physician's dexterity in huma relations.

PRoblem Corner

No physician enjoys crawling out of bed during th night to answer an emergency call. He knows from actu experience that the majority of such calls are fals alarms. Yet—one out of 10 such calls may be a re emergency. Since no doctor has a crystal ball to help him differentiate over the telephone the real from the fancied emergencies, he takes a great risk in refusing any such call. The one emergency case that goes untended creates a tremendous public relations problem for the entire profession. Here's what happened in one midwestern city recently:

At 5:45 a. m. one Sunday recently a frantic father told a telephone operator his 5-year-old daughter was in convulsions and that he could not remember the telephone number or spelling of his doctor's name. The operator quickly traced the doctor and put through a call to him. His wife answered and berated the operator for calling the doctor so early. When the father was put on the line and explained that the inhalator squad had already been called to his home to revive the child, the wife finally allowed him to speak to the doctor. The physician agreed to accept the call. The doctor's wife then came back on the line and told the operator not to ring them for any more emergency calls, and the doctor reiterated the request in somewhat abusive terms.

Because of the telephone operator's persistence, tragedy was averted. The doctor admitted to the father he was glad the parents insisted on his coming at once, as the little girl was more seriously ill than he had imagined. The grateful mother later wrote a letter of appreciation to the telephone company praising the efforts of the operator in securing a doctor. The telephone company got good public relations out of the incident, but how much ill will was engendered by the attitude of the physician and his wife in this instance? The telephone company official who reported the incident stated in a letter that there were "too many such occurrences."

The medical profession has accepted the responsibility for providing emergency medical care. What can the profession do to assure that individual physicians do not shirk this responsibility? The physician's wife must understand the nature of this responsibility too, since she often can do irreparable harm to the public relations of the individual doctor. Public relations is more than just the responsibility of the physician—it is the responsibility of his wife, his family, and all those associated with him in his practice.

Encouraging Traffic Safety

Few persons are better qualified to point out to the public the terrible consequences of traffic accidents than physicians. By promoting traffic safety, physicians in a number of communities are rendering a real community service and incidentally netting better public relations. A Warrenton, Va., physician reports one effective traffic safety promotion accomplished in his town. "In our town when the highway department refused a stop light for a dangerous intersection, we sent a delegation of two doctors (one representing the local hospital) and an undertaker to explain how 'profitable' that intersection had been. The hospital and undertakers' bills were quite impressive. We got *two* stop lights—and at once."

In a similar move, physicians of the Schuyler County (N. Y.) Medical Society called attention of county officials to a dangerous curve near an intersection. The letter pointed out that one person had been killed and several injured at the spot. Action to abolish the curve was urged. The community newspaper used the society's letter as the basis for an editorial and further emphasized the need for action. Medical public relations need not be limited to medical affairs. The opinion of the medical society on any community situation often carries great weight. Voicing that opinion constructively often results in improved public relations for the profession.

MEDICINE AND THE LAW

MEDICO-LEGAL ASPECTS OF TISSUE HOMOTRANSPLANTATION

Allan D. Vestal, LL.B.
Rodman E. Taber, M.D.
and
W. J. Shoemaker, B.S., Iowa City

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Commencing with the transfusion of blood shortly before World War I, the concept of transferring tissue from one individual to another as a life-prolonging or lifesaving measure has acquired general acceptance by physicians and the public. Blood transfusion has progressed from initially hazardous, experimental procedure to one of common and every day usage in both large and small hospitals. The principles and techniques of transfusion are sufficiently well understood by the medical profession and lay public alike that no written authorization from the recipient is required for a transfusion.

During the past ten years the field of tissue transplantation has received increasing attention. Classical experimental work was carried out at the turn of this century [1] in connection with arterial transplantation. It was clearly shown to be a feasible procedure at that time but due to lack of advances in supportive facilities it was not carried over to human application. Following World War II, much of the original experimental work was repeated [2] and in 1948 [3] the first successful series of arterial homotransplantations was carried out in man. The rapid development of supportive facilities at this time in the fields of anesthesiology, applied physiology, and the antibiotics made these procedures safe to perform in the clinical field. Further advances in methods of tissue storage [4] have extended the usefulness of vessel transplantation so that at the present time this procedure is being carried out in many of the larger hospitals in this and foreign countries. The surgical treatment of obstruction or abnormal dilation of major arteries due to arteriosclerosis or "hardening of the arteries" is accounting for its most frequent use. Arterial transplantation makes it possible for the surgeon to excise the diseased vessel and substitute a healthy one in its place. These conditions have become of increasing importance due to a steady rise in the proportion of aged people within our population. Arterial homotrans-

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Because of space limitations, the bibliographic references have been omitted from The Journal and can be found in the original article.

plants were successfully utilized in treating war injuries during the Korean conflict.

The transplantation of skin from a donor individual to a severely burned patient, or skin homografting, accounts for a modest number but frequently lifesaving type of skin grafting procedure. In this surgical procedure, the donor skin survives for a few weeks rather than permanently, but during this period the patient may be carried through a critical phase of his illness. In the very severely burned patient, the remaining unburned areas may not be sufficient to permit the use of his own skin for grafts. In this situation, the skin homotransplant constitutes a lifesaving application. The majority of skin transplants are carried out from one part of the individual to another part and therefore do not involve a donor and recipient. It is possible and has recently proven successful [5] to use skin removed from a deceased person for the former type of skin transplant. This tissue source would mean that parents and relatives of patients requiring this type of procedure would be spared the pain and disability of serving as donors. The need for transplanting skin from one individual to another arises most frequently in the case of severely burned children. Another need, and one which it is hoped will remain theoretical for some time, is in dealing with the extensive burns incident to an atom bomb conflict. Both civilian and military application would be involved.

The transplantation to a patient of bone tissue removed from another individual is a practical surgical procedure. In this application of tissue transplantation, the donor tissue is frequently obtained from patients who require chest surgery. It is commonly necessary to remove a portion of a rib from these patients in order to gain access to the interior of the chest. This type of donor tissue is therefore usually available without subjecting an individual to a separate surgical procedure for the purpose of obtaining the transplant material. Occasionally, bone homotransplants removed from the recently deceased have been used.

Based on sound experimental work,[6] the transplantation of portions of the cornea of the eye has become a frequently practiced operation in hospital centers of the United States and Great Britain. Many children and adults have had their sight restored through the use of this form of tissue transplantation. Many more are awaiting the procurement of sufficient donor tissue so that they may receive the benefits of this type of surgery.

The surgical procedures of vessel, skin, bone and cornea transplantation have each weathered a long period of experimental development. Considerable fundamental information remains to be learned about these and other types of tissue transplantation. The acquisition of this knowledge will in all likelihood expand the scope of their application.

The full utilization of techniques, those known now and those that may be discovered in the area of tissue transplantation, will certainly require greater amounts of donor tissue than have been available in the past. In the nature of things, medical personnel working in this field look generally to those who have recently died as the most frequent source. At the present time there is no routinized, common procedure by which such tissue is obtained, rather various individuals are using diverse methods. Some individuals working in this field have obtained written consent of the nearest of kin as well as routine postmortem authorization before removing tissue for transplantation purposes at the time of necropsy. Others have required only the necropsy authorization.[7]

In the early days of experimentation, such haphazard procedures were sufficient and provided an adequate supply of tissue with little difficulty. With the rapid increase in application of these operative techniques, the demand has in many localities far outdistanced the available supply. As a result, physicians performing these operative procedures have become interested in maximizing the source of such tissue while at the same time minimizing the possibility of legal difficulties.

LEGAL BACKGROUND

Originally in England the ecclesiastical courts exercised jurisdiction over matters concerning dead bodies.[8] Recognizing such jurisdiction, Lord Coke said such matters were not under the cognizance of common law courts.[9] From this there arose the concept that there were no property rights in a dead body.[10] It was not until the latter part of the 17th century that the common law began to take jurisdiction of religious offenses and by this time the concept was accepted that there were no property rights in dead bodies.[11] Since the time of Lord Coke the cases have held uniformly that there is no right of ownership in a commercial sense in a dead body.[12] It has been pointed out that the incidents of ownership, such as the rights to dispose of the property, to abandon it, to exclusive possession, to destroy, alter or improve it are not present.[13]

Even the courts which flatly state there is no property in a dead body do agree that there is a right of possession of the body for purposes of burial.[14] Other courts take the view that the right to possession and disposal is in the nature of a "sacred trust."[15] Regardless of whether this right is a quasi-property interest in the body, or a property interest, or something else, the courts have held that this right belongs to the surviving spouse, children, and then next of kin in that order.[16] In the growing law in this area the common law courts developed the idea that any exhibition of a dead body, even for scientific purposes, was a common law offense.[17] It was held in *Regina v. Francis Scott* [18] that a dead body could not be detained as security for the payment of a debt.

The law with respect to human bodies is ever changing. As Mr. P. E. Jackson points out in the introduction to his treatise on "The Law of Cadavers," ". . . when we go to the common law for bases for rules of law respecting dead bodies and their disposition, we find little or nothing of value. . . . When we look to our own substantive law for precedents, we find that our courts . . . in the determination of these questions . . . were not concerned with property rights, but were dealing with sentimental matters affecting domestic relations." [19] As the law in the various jurisdictions today indicates, the rules concerning human bodies are not so much concerned with property rights as they are with ". . . considerations of love, reverence, public health, comfort, and convenience. . . . In the formulation of these rules, it became possible to give heed to modern conceptions of human value and rights and to deny the force of mechanically created postulates of the common law."[20]

Rules respecting rights and remedies in dead bodies usually spring from respect for natural feelings and emotions.[21] One court stated that all questions which arise out of and which regulate custody and disposal of dead bodies depend not upon the principles which regulate possession and ownership of property but upon considerations arising out of domestic relations and ties of blood.[22]

The general policy concerning dead bodies can be articulated as follows: 1. Rights in a dead body exist ordinarily only for purposes of disposal and a dead body is not property in the ordinary commercial sense.[23] 2. The person who has the privilege of exercising the right [24] of disposal or the person who is charged with the duty [25] of disposal is entitled to the possession of the body for that purpose.[26] 3. The person who has the right of possession is entitled to receive the cadaver in the same condition as it was in when death occurred.[27]

There are numerous exceptions to the elicited general rules and a large number of statutes with respect to dead bodies deal specifically with these exceptions which fall into several well-defined groups.

First the sanctity or immunity of a cadaver must give way before the general interest of the public when an autopsy is required for the protection of health or the discovery of crime.[28] In such a case, the welfare of society demands that the state or its authorized representative be permitted to conduct an examination by dissection without reference to the wishes of the relatives of the decedent. No action can be maintained against a coroner or against the examining physicians for the ordering or performing of an autopsy or postmortem examination where the circumstances are such as to render the examination reasonably necessary and proper in the exercise of the duties of such coroner and medical examiners if the work is done in a decent manner and without wantonly disfiguring the body.[29] The question of whether the autopsy services of the coroner are necessary in each case of death involving suspicious circumstances is one largely within the sound discretion of the coroner.[30] The right of relatives to the possession of the body for purposes of burial is subordinate to such a right.[31] It has even been held that where a physician, unable to determine the cause of death without an autopsy, proceeds, without the consent of the next of kin, to make an examination in a decent and proper manner for the purpose of making a death certificate, the courts impose no liability on him.[32]

The sanctity of the cadaver has given way to the public interest in the correctness of an adjudication between parties to civil litigation. This interest in the outcome of actions between parties has resulted in the legal approval of a provision in insurance contracts which authorizes an autopsy to ascertain the cause of death.[33] Even without such a contractual provision, a court may order an autopsy to establish certain facts in civil litigation.[34]

The public interest in the prosecution of crime and the vindication of legal rights has led also to the passage of legislation which provides for the disinterment of dead bodies.[35] Although the courts may be reluctant to exercise discretion granted under such legislation,[36] the basic policy of such laws seems quite clear. In such legislation, the justification may not be in terms of criminal responsibility, but rather civil liability.[37]

The interest of the public in the promotion of medical education and scientific progress has also led to some relaxation in the usual immunity attached to dead bodies. Because of the very nature of the science of medicine, a number of cadavers are needed for research and education. To meet this need, a number of states have passed legislation. A typical statute provides that the ". . . director or person in charge of any hospital, institution, morgue or other place for bodies of deceased persons not interred or otherwise finally disposed of, and every funeral director, undertaker or other person having in his lawful possession, any body of a deceased person for keeping or burial, shall deliver every body of a deceased person in his possession . . . not placed therein by any person, agency or organization for keeping, burial or other lawful disposition, to: (1) any medical college, school or institute registered by the regents . . . (2) any university within the state authorized by law to confer degrees of doctor of medicine or doctor of surgery; . . ." [38] Furthermore, permission is given to use the body for the purposes of medical, anatomical and surgical science and study.[39]

Thus, public policy has seen the need of medical-scientific uses of dead bodies and has provided a legal means for obtaining dead bodies to help save the lives of others.

The same interest in medicine and scientific progress behind the unclaimed cadaver laws would seem to result in the approval legally of the concept that an individual can give consent to the performance of an autopsy in the interest of science or even that an individual can give his body for scientific investigation.[40]

These exceptions to the general rules, developed because of the natural hesitancy to cut or dissect a human body, suggest the direction in which public feeling has developed toward dead bodies. Whereas there is much feeling of reverence and sacredness concerning cadavers, the knowledge that science and medicine need to utilize dead bodies to save the lives of other humans and to promote socially acceptable ends has resulted in great breaks in the protective wall surrounding the dead body. When society's needs have required it, the sanctity and immunity of dead bodies have given way.[41]

PRESENT STATE OF THE LAW

The use of tissues for transplantation, of course, has repercussions in a vast number of fields.[42] In law there are at least two areas that are concerned. First, the persons involved may find that they are subject to criminal prosecution for their part in the operation;[43] additionally, they may find that they are subject to a civil action for damages because of the act of transplantation. In order to limit the scope of the coverage, this article is limited to the problem of civil liability of a doctor [44] for the taking [45] of tissue from a body. Other facets of the problem will not be discussed herein.[46]

The medical profession is faced with two quite dissimilar legal problems in obtaining tissue for therapeutic use. One is that of getting tissue, for example, corneal matter, from a living donor. The other is getting tissue from a dead body. Although the medical profession may consider the problems as similar, the legal considerations are quite different.

It seems quite probable that a living individual, even in the absence of statutory authority, can give a part of his body.[47] That there is very little authority on the matter is readily understandable since there is a serious question whether anyone except the willing donor has any interest at all in the matter. For example, when a person donates a pint of blood, it seems apparent that another cannot urge that he has been injured. Some jurisdictions, it is true, have passed special legislation giving to an individual the right to determine what shall be done with a part of his body which has been separated from the body.[48] However, this sort of legislation would seem to be merely a restatement of the existing law on the matter.

Living donors would seem to be a rather limited source for tissue to be used for therapeutic purposes. Some elements of the body are readily replaced, such as blood, so that living donors are an excellent source. But this is not true of most of the tissue to be used as homografts. Occasionally a living donor is separated from part of his body through accident or required surgery, and then there is a possibility that such tissue from a living source could be used. In addition some donated tissue can be obtained from living individuals. For example, corneal tissue given by a parent for a blind child. But it seems apparent that if any great amount of tissue is to become available for homografts it must come from the bodies of deceased individuals.

Turning then to cadavers as a possible source, one concludes that there are several legal approaches to the matter. First, as mentioned above, a number of jurisdictions have passed legislation designed to furnish cadavers to medical schools and other such institutions.[49] One statute, which is more or less typical, provides: The body of every person dying in a public asylum, hospital, county home, penitentiary, or reformatory in this state, and which is suitable for scientific purposes, shall be delivered to the medical college of the state university, or some osteopathic or chiropractic college or school located in this state, which has been approved under the law regulating the practice of osteopathy or chiropractic; but no such body shall be delivered to any such college or school if the deceased person expressed a desire during his last illness that his body should be buried or cremated, nor if such is the desire of his relatives or friends. Such bodies shall be equitably distributed among said colleges and schools in accordance with such rules as may be adopted by the state department of health, but the number so distributed shall be in proportion to the number of students matriculated at each college or school. The expense of transporting said bodies to such college or school shall be paid by the college or school receiving the same.[50]

On the face, such statute would seem to offer a possible source for tissue for therapeutic purposes. In fact, this is not true because of at least two reasons. First, in many states where there are no large cities, such statutes do not have any real application because there are very few unclaimed bodies, and the medical schools are forced to get cadavers for educational purposes through commercial channels. Moreover, such cadavers are so treated as to be entirely unsuited for homografts. Secondly, in this type of legislation there is usually a provision such as the following: When any dead body which has been delivered under this chapter for scientific purposes is subsequently claimed by any relative or friend, it shall be at once surrendered to such relative or friend for burial without public expense; and all bodies received under this chapter shall be held for a period of sixty days before being used.[51] Since the tissue, under present medical practice, must be obtained and processed within a very short period of time, such a statutory provision above means that tissue from such cadavers is not available for therapeutic use.[52] Also, although it would not seem to pose a real problem, such statutes were not drafted with therapeutic use in mind, and a strict interpretation of the statute might seem to exclude the use of tissue for transplanting.[53] However, the better view would seem to be that, if such tissue could be used, that its use for therapeutic purposes would fall within the scope of such legislation.[54]

Another possible legal approach to the question of getting tissue from deceased individuals is that of getting permission to take such tissue. This could be either ante-mortem permission from the prospective donor or post-mortem permission from those who have the right of possession of the body.

First, ante-mortem permission from the prospective donor. The legal background in this area offers no definitive answer to the problem of whether ante-mortem donation of tissue for therapeutic use is legally effective. However, the growth and development in the area do suggest the probable present state of the law. Dicta in a number of early cases would suggest that such ante-mortem consent would be good.[55] Many of these cases arose in connection with the right of an individual to control the place of interment of his body. Almost without exception, courts have held that an individual has the right to control the place of interment.[56] The limited authority to the contrary seems to be readily understandable when the facts are considered,[57] and the precedent value of the authority may be questionable.[58] The same control of an individual over the disposition of his body was recognized in the matter of cremation. An individual can direct that his body be cremated, and such direction will be enforced.[59] A third group of cases in the area involved the right of an individual to contract with an insurance company for the performance of an autopsy upon death, at the discretion of the company.[60] Although such contracts have been interpreted restrictively,[61] the basic right of an individual to contract concerning his body after death has consistently been upheld. Under an insurance policy which provides that the company shall have the right to have an autopsy performed, a court may exercise equitable jurisdiction, when demand for an autopsy is refused, to entertain a bill for discovery and to appoint a receiver to assume responsibility for the organs of the deceased pending examination to determine the cause of death. Under the contract the company has a right to conduct an examination of the organs superior to any right of any member of the family of the deceased.[62] In addition, a number of states have by statute specifically provided that an individual can provide that his body be disposed of as he designates, for example, for scientific purposes.[63] Although there is room for argument, it seems reasonable to assert that such legislation merely restates the existing law.[64] It may be valuable for clarification and to eliminate the possibility of doubt, but it seems probable that such legislation does not add to the law.[65]

It would seem to be fair to conclude that a person at the present time in the United States probably has the right to control the disposition of his body after death as long as no public policy is contravened,[66] and it would seem to follow that an individual in his lifetime can give permission for the taking of tissue from his body after death. In some areas this may be a feasible long-range approach to the problem. Through public education, it may be possible to sell the public generally on the idea that the giving of such ante-mortem permission is desirable. However, at the present time, this is not a very productive source of tissue. The question of donation is not a pressing one until the individual is in a hospital, and then there is an understandable reluctance to raise the question.[67] A request for permission to use tissue after death would be a most shocking experience to a patient. And in many cases there might be a very serious question about the legal capacity of the patient to give such permission.

Secondly, there is a possibility that post-mortem permission might be obtained from those entitled to the body. Again we find very little authority but it seems that were such permission obtained, any serious legal difficulties would be avoided. If the relative or relatives with the right to possess the body [68] should give their consent, it would seem that no legal difficulties could arise since no other person would have the legal standing to raise the question,[69] and the person with the right legally to assert a cause of action apparently would be barred or estopped by the authorization. It should be noted that there is generally no statutory authorization for such permission.[70] The closest statutes are those that authorize an "autopsy of post-mortem examination" when post-mortem permission is given by one entitled to the body.[71] It is possible that such a statute might be liberally construed to include the removal of tissue for therapeutic purposes. But it does seem that statutory authority for removal of tissue is not required to avoid civil liability if permission of those legally interested is obtained.

The realistic approach to the matter at the present time must be based on one very simple fact. The one great, readily available source of tissue at the present time is the steady flow of bodies on which autopsies are performed. There are many autopsies performed under the various statutory authorizations. For example, Iowa provides for the performance of autopsies when desired by a coroner in examining into deaths ". . . of such persons only as are supposed to have died by unlawful means, . . ." [72] and for autopsies in certain other special situations.[73] In addition, there is a statutory provision that an autopsy or post-mortem examination may be performed upon the body of a deceased person by a physician or surgeon whenever the written consent thereto has been obtained in any of the following manners: 1. By written authorization signed by the deceased during the lifetime. 2. By written consent of any party whom the deceased during his lifetime designated by written instrument to take charge of his body for burial. 3. By consent of decedent's surviving spouse. 4. If the surviving spouse is incompetent, unavailable, or does not claim the body for burial, or if there be no surviving spouse, by consent of any adult child, parent, brother or sister of the decedent. The consent of any one of such persons shall be sufficient provided that such autopsy shall not be performed under a consent given by one of such persons if, before such autopsy is performed, any of said others shall object in writing to the physician or surgeon by whom the autopsy is to be performed. 5. If none of the above persons is available to claim the body, then by consent of any other relative or friend who assumes custody of the body for burial.[74] Such ante-mortem [75] consent or post-mortem [76] consent for an autopsy probably is effective even in the absence of statute.[77]

Under these and similar provisions,[78] there are a great number of bodies that are opened and tissue examined. Various parts are removed for scientific reasons, some parts are not replaced, the body is returned essentially to its original external appearance and turned over to the proper individual for burial. It seems to be a practice—of some widespread acceptance—to remove and keep, for scientific purposes, tissue from bodies being subjected to autopsy. As far as the authors have been able to ascertain, no litigation has arisen over the taking of tissue for therapeutic purposes. In *Palmquist* v. *Standard Accident Insurance Company*,[79] the deceased husband of the plaintiff had an insurance policy with the defendant. The policy provided that the insurer had the right to make an autopsy in case of death. The insurance company, under the authority contained in the policy and with the permission of the plaintiff performed an autopsy. The physicians representing the insurer removed some organs for pathological examination. The organs were retained for "some months." A demand was made for their return, but the company's doctors retained possession, and continued in possession until the time of trial. No reason was given for the continued possession of the organs, and the jury returned a verdict in favor of the plaintiff for $1,500.

In *Palenzke* v. *Bruning* [80] an autopsy was performed under the authority of a coroner. The court stated: Unless sufficient reason existed for an autopsy [the plaintiff] was entitled to the body unmutilated. If such reason did exist, he was, nevertheless, entitled to the whole body, even though necessarily disfigured, unless it proved necessary to remove and preserve some particular organ for further examination, as to whether a crime had been committed, or for evidence. But no one—coroner, nor doctor, nor undertaker—had the right to remove parts of the body and, without the parents' consent, throw them into a privy vault. Such conduct violates every instinct of propriety, and could not fail to outrage the feelings of the kindred of the deceased. For such violation of the [plaintiff's] rights an action for damages can, we think, be maintained.[81] The court held the demurrer should have been overruled and that the plaintiff stated a cause of action.

In *Hassard* v. *Lehane* [82] the court was faced with a case involving an illegal dissecting of a body by a coroner's physician. The doctor, without authority, performed an autopsy ". . . removed the heart and spleen, and cut them into many pieces, and had them preserved in alcohol in a jar in his office . . . the only explanation offered by the defendant was that the decedent had a greatly enlarged spleen, and was an interesting case." [83] The court held that nonsuit at the end of plantiff's case should not have been granted. The court noted that ". . . even if the autopsy had been authorized by the coroner, that did not, on the facts here presented, justify the removal and detention of any of the organs of the decedent." [84]

These cases suggest that an individual may be forced to answer in a law suit which alleges that, after an autopsy, parts have not been returned when no reason is given for the failure to return such tissue or when the reason given is considered to be insufficient. The cases do not definitely decide the legality of the removal of tissue for therapeutic purposes during an autopsy. These cases do suggest that when an autopsy is performed the purpose to be served may be of great legal importance. Where the investigation of crime is involved, the autopsy may take place under certain limitations;[85] when the matter at hand is the cause of death and the application of an insurance policy certain other restrictions may operate. When the autopsy is being performed under a general grant of consent in the interest of science, other conditions may be operative. In other words, the autopsy must be conducted within the terms of the authority given.[86] An unnecessary violation will give rise to liability. However, a reasonable construction must be given to such authority.

When an autopsy is performed, authorized either by statutes or by consent given by the person entitled to the body, there is a logical implication that there is given to the doctors ". . . permission . . . to conduct such examination in the approved and usual manner practiced by their profession."[87] As one authority has stated: It has always been customary to remove from a body during a post-mortem organs and specimens for the purposes of pathological and histological examination and preservation and demonstration specimens. There is no statutory bar to such actions, and it does not fall within the definition of the desecration of a body, if it is done bona fide and decently, in accordance with universally accepted medical practice. If consent is given to the post-mortem, it must be taken to include consent for this purpose, which is considered to be an integral part of post-mortem procedure.[88]

The bodies on which autopsies are performed then would seem to be an excellent source of tissue for therapeutic purposes. Persons performing such autopsies might well remove tissue for storage in "banks," since ". . . there . . . does not seem to be any legal barrier to this being done if the operator chooses to do so voluntarily, provided that there is no visible mutilation of the body other than that inseparable from the usual requirement of post-mortem techniques." [89]

A doctor engaged in homotransplantation can probably obtain tissue in sufficient amounts using post-mortem authorization of the next of kin and still obtain a reasonable degree of protection from civil liability. This would involve getting from the next of kin[90] a statement of authorization or request for dissection.[91] Such writing could be so drafted as to include, without any question, the right to take tissue for therapeutic use.[92] Legally this would then involve the taking of tissue by postmortem consent, as well as the performing of autopsy discussed immediately above. The obtaining of tissue in this manner, buttressed then by both specific postmortem consent and the precedent to be found in the accepted practice of pathologists, would seem to be proper beyond any reasonable doubt, and would not subject the participating doctor to legal liability.

PROGNOSIS

Unless some substitute is found for human tissue now being used in homotransplantations there is every reason to believe that there will be an ever growing demand for such tissue. The law as it now stands should not impede the progressively greater use of homografts. In fact, the reasonable utilization of the available legal devices should produce sufficient tissue. Immediately, through the greater use of consent by the surviving kin, an expanded supply can be obtained. Then through education the device of the ante mortem consent of the donor himself can be used to increase the supply of tissue for therapeutic purposes. The legal devices are available; the next step is the cooperation between the medical and legal profession to utilize these devices.

Since this article was written, the Fifty-sixth General Assembly of the state of Iowa has passed and the governor has signed into law a comprehensive act, House File 167 (as amended), dealing with cadavers and their use by the medical profession. One provision reads as follows: Every inhabitant of this state of the age of twenty-one years or more and of sound mind may, by his will or by a written instrument executed in the same manner as a deed, arrange for or prescribe for the disposition to be made, after death, of his body or any organ, member of part thereof, provided the same is for the purpose of scientific use as provided in this chapter, or for other advancement of medical science, or for the replacement or rehabilitation of diseased of worn out parts or organs of other humans. The person or persons having the right to a body for burial may likewise consent to such use of the body or parts thereof. And such disposition of his own body may be revoked by the testator or grantor at any time prior to his death by the execution of a written instrument in the same manner as the original grant. Such legislation is valuable in clarifying the legal rights and obligations involved.

MEDICAL NEWS

CALIFORNIA

Symposium on Heart Disease.—The 26th annual Postgraduate Symposium on Heart Disease, Oct. 5-7, at the St. Francis Hotel, San Francisco, will have as guest speakers Drs. D. Evan Bedford, London, England; Franklin D. Johnston, Ann Arbor, Mich.; Elliot V. Newman, Nashville, Tenn.; Edith L. Potter, Chicago; and Myron Prinzmetal, Los Angeles. Cooperating with the San Francisco Heart Association in this program will be the county heart associations of Alameda, Monterey, San Mateo, and Santa Clara. Topics for discussion will be: Electrocardiography and Vectorcardiography; Congenital Heart Disease; Pathology and Diagnosis; Coronary Artery Disease; and Therapy. Dr. Bedford, the speaker at a dinner meeting Thursday evening, will present "New Lamps for Old in Cardiology."

Escape from Aircraft.—A symposium, "Escape from High Performance Aircraft," will be held in Los Angeles Oct. 7, under the auspices of the Aero-Medical Engineering Association. The all-day symposium and the dinner and evening round-table discussions will be presented at the Institute of Aeronautical Sciences Building, 7660 Beverly Blvd., under the cosponsorship of the Institute of Aeronautical Sciences, Los Angeles section, and the Institute of Transportation and Traffic Engineering of the University of California. Nationally known authorities in the field will discuss methods of escape, designing for protection, personal equipment for protection, and the physics, physiology, and psychology involved. Case histories of actual escapes under emergency conditions will be presented.

Medical Lecture Series.—The annual medical lecture series sponsored by University Extension and the University of California Medical School in Los Angeles will be presented on Mondays, 7:30-9:30 p. m., Oct. 3-Dec. 19, in the first floor lecture hall (room 13-105) of the medical center, with Dr. David H. Solomon as chairman. Lecturers will discuss Management of Peptic Ulcer, Chronic Liver Disease, Indications and Results of Common Cardiac Surgical Procedures, and the Current Status of Tuberculosis and Systemic Fungus Infections. Applications for admission to the series (fee, $50) should be addressed to Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, Medical Extension, University Extension, University of California, Los Angeles 24 (BRadshaw 28911-extension 202).

ILLINOIS

Psychiatric Lectures.—The sixth annual North Shore Health Resort lectures on psychiatric problems will open Oct. 5 at 8 p. m. at the hospital (225 Sheridan Rd., Winnetka) with "Management of Psychiatric Emergencies" by Dr. Karl M. Bowman, professor of psychiatry, University of California Medical School, San Francisco. The Commission on Education of the American Academy of General Practice has approved these lectures for informal credit. The J. B. Lippincott Company of Philadelphia will publish the entire series as a book. All royalties that will accrue have been assigned to the American Psychiatric Association, of which Dr. Bowman is a past-president. All physicians are cordially invited to these lectures.

Chicago

Monthly Cardiac Conference.—The monthly clinicopathological cardiac conference of Cook County Hospital will be held Oct. 7 from 11 a. m. to 12 noon at an open meeting in the Children's Amphitheater, 700 S. Wood St. "Recent Advances in the Diagnosis of Congenital Malformations of the Heart" will be presented by the guest speaker, Dr. Alexander S. Nadas, the Children's Medical Center, Boston.

Annual Bevan Lecture.—Dr. Owen H. Wangensteen, professor of surgery, University of Minnesota Medical School, Minneapolis, will deliver the 27th annual Arthur Dean Bevan Lecture of the Chicago Surgical Society at the Knickerbocker Hotel, 163 E. Walton St., at 8 p. m. Oct. 7. The subject of his address will be "Current Accomplishments in Cancer of the Alimentary Tract with Special Reference to the Stomach and Colon." The profession is cordially invited to attend the lecture.

KANSAS

Lecture on Hospital Explosion Hazards.—The Sedgwick County Medical Society will have as guest speaker Oct. 4 Dr. George J. Thomas, director, department of anesthesiology, St. Francis and Medical Center Hospitals, Pittsburgh, who will present a lecture and demonstration concerning "Fire and Explosions Hazards in Hospitals and Their Control." Dr. Thomas is chairman, section on anesthesiology, University of Pittsburgh School of Medicine. Since 1938 he has been active in research on the prevention of fires and explosions with flammable anesthetic agents and has worked in close cooperation with the explosives division of the Bureau of Mines in Pittsburgh. Members of component medical societies of the Kansas Medical Society and Veterans Administration and armed services personnel are invited to attend the meeting. Dinner reservations may be secured by calling MU. 3-7557 or writing Sedgwick County Medical Society, 1102 S. Hillside, Wichita 17.

MASSACHUSETTS

Ballard Memorial Fund.—To honor the late James F. Ballard, who had been affiliated with the Boston Medical Library for almost 63 years and had served as its director for 28 years, one of the fellows of the library has offered to start a James F. Ballard Memorial Fund with a contribution of $5,000, contingent on significant interest in the memorial fund by other friends of Mr. Ballard and the Boston Medical Library. The income from the fund will be used primarily to establish a pension plan for the personnel of the library. Friends wishing to contribute may send checks, made payable to the Boston Medical Library, 8 Fenway, Boston 15.

MINNESOTA

Dr. Sogge Honored.—June 26 was Dr. Sogge Day at Windom, with residents of the area and professional colleagues gathering to pay tribute to Dr. Ludwig L. Sogge for his 50 years of service in medicine. Keynote speaker on the program was Dr. Frederic J. Kottke, former resident of Windom and now head of the department of physiotherapy at the University of Minnesota, Minneapolis. The day's activities included a dinner for medical men of the area, followed by an afternoon program of speeches and entertainment in the high school auditorium.

MONTANA

Society News.—The Montana-Wyoming chapter of the American College of Physicians will hold a regional meeting in Billings Oct. 7-8, 1955. All physicians in Montana, Wyoming, and the adjoining states are invited to attend. Dr. Harold W. Gregg, Butte, college governor for Montana and Wyoming, will be toastmaster at a banquet at the Northern Hotel, Friday, when the guest speakers will be Dr. George F. Strong, Vancouver, B. C., Canada, president of the college, and Mr. Edward R. Loveland, Philadelphia, executive secretary.

NEW YORK

Emotionally Disturbed Children.—The Astor Home, Rhinebeck, a residential center for research and treatment for emotionally disturbed children, will hold its first annual Conference on Child Treatment Oct. 10. Participants will include Drs. Frank J. O'Brien, Brooklyn, N. Y.; Leo H. Bartemeier, Baltimore; Harvey J. Tompkins, Washington, D. C.; Ralph D. Rabinovitch, Ann Arbor, Mich.; and Earl A. Loomis Jr., Pittsburgh.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

University News.—Frieda S. Robbins, Ph.D., Rochester, has retired as associate in pathology at the University of Rochester School of Medicine and Dentistry after 32 years' service.——Dr. Robert P. Whalen, medical administrator in the Albany County Welfare Department, has been appointed instructor in public health at the Albany Medical College of Union University, and Dr. Franklyn B. Amos has been promoted from assistant professor to associate professor of public health.——Dr. Brian MacMahon, lecturer in social medicine, University of Birmingham, England, has been appointed associate professor of environmental medicine and community health at the State University of New York College of Medicine at New York City, Brooklyn, where he served as visiting lecturer during 1953 and 1954. At that time he conducted an epidemiological investigation into the incidence of leukemia and related disorders in Brooklyn over the past decade.

New York City

Dr. Lyall Named Professor of Clinical Surgery.—Dr. David Lyall has been promoted from associate professor to professor of clinical surgery at Post-Graduate Medical School of New York University-Bellevue Medical Center. Dr. Lyall also succeeds Dr. Herbert Willy Meyer, who resigned July 1 as director of the center's University Hospital Tumor Service and of the fourth surgical division of Bellevue Hospital. Dr. Lyall joined the staff in 1941 as instructor in surgery, when the school was the former New York Post-Graduate Medical School and Hospital. In 1947 he became instructor in surgery at Cornell University and returned to the New York Post-Graduate Medical School in 1948 when the school and hospital became a part of New York University-Bellevue Medical Center.

Elder Craftsmen Shop.—The Welfare and Health Council of New York City announces that it will open a nonprofit Elder Craftsmen Shop this fall, where citizens, aged 60 and over, will display and sell wood carvings, ship models, jewelry, leathercraft, and other articles made with their own hands. Mr. J. Donald Kingsley, executive director of the council, states that "The annual Hobby Show for Older Persons, which the council has sponsored for the past nine years, has encouraged thousands of men and women to use old skills and develop new ones. The Elder Craftsmen Shop will provide an important step to help them sell their articles in fair competition with other merchandise, to supplement their pensions and low fixed allowances and thus achieve some degree of self-support." A campaign will be conducted to secure funds to underwrite the shop initially. Temporary headquarters will be at the council offices, 44 E. 23rd St. Contributing memberships available include annual member, $10; sustaining member, $25; donor, $50; benefactor, $100; and founder, $1,000.

PENNSYLVANIA

Surgical Society Presents Award.—The first annual award of the Pittsburgh Surgical Society was presented at the recent annual meeting to Dr. Charles William Mayo, professor of surgery, Mayo Foundation, Rochester, Minn. After receiving the award, a plaque, Dr. Mayo addressed the members of the society and their guests on "Carcinoma of the Colon and Rectum with Special Reference to Precursory Lesions."

Philadelphia

Meeting on Care of the Cardiac Child.—The second annual Institute for the Care of the Cardiac Child will be held Oct. 5 at the Children's Heart Hospital, Conshohocken Avenue. Panel discussions (10 a. m.-12 noon) will consider congenital heart disease, active rheumatic fever, and chronic rheumatic heart disease. The discussions will be resumed after a buffet luncheon in the hospital dining room, 12:30 p. m., at which the speaker will be Mr. Thomas D. McBride, vice-chancellor, Philadelphia Bar Association.

Society News.—Newly elected officers of the Philadelphia Roentgen Ray Society include: Dr. D. Alan Sampson, president; Dr. Edwin L. Lame, vice-president; Dr. Herbert M. Stauffer, secretary; and Dr. Randal A. Boyer, treasurer.——The Hawthorne Surgical Society, sponsored and organized by the 1945-46 class of the Graduate School of Medicine of the University of Pennsylvania, will hold its second annual dinner meeting in Chicago during the annual meeting of the American College of Surgeons Nov. 2. The cost will be $8 per person; $13 per couple. For reservations, write to the secretary-treasurer, Dr. Julian A. Sterling, 1351 W. Tabor Rd., Philadelphia 41. Membership in the society is open to those members of the Graduate School of Medicine who are fellows of the American College of Surgeons or diplomates of the American Board of Surgery.——Dr. Edward L. Bortz will serve as moderator Oct. 3, 8:30 p. m., for "Our Aging Population," a program for the public, presented without charge by the College of Physicians of Philadelphia, 19 S. 22nd St. On Oct. 10 the topic for the public program will be "Homosexuality and Sexual Deviants" and the moderator Dr. Calvin S. Drayer.

SOUTH CAROLINA

Medical Day.—Greenville Medical Day, Oct. 4, will be observed at the Greenville General Hospital. After discussion of recent advances in pediatrics by Dr. J. Earle Furman and in medicine by Dr. Hugh P. Smith Sr., both of Greenville, "Radioisotopes" will be considered by Dr. Robert Robbins, Temple University School of Medicine, Philadelphia; "Recent Advances in Obstetrics" by Dr. Robert A. Ross, university hospital of North Carolina School of Medicine, Chapel Hill; and "Recent Advances in Surgery" by Dr. W. Emory Burnett, Temple University School of Medicine, Philadelphia. After luncheon "Chemotherapy and Radiotherapy of Cancer" will be discussed by Dr. Robbins; "Surgical Treatment of Bowel Cancer" by Dr. Burnett; and "Surgical Treatment of Gynecologic Cancer" by Dr. Ross. A social hour and dinner will precede the presentation of "Cancer of the Breast" by Dr. J. Elliott Scarborough Jr., director of the Winship Clinic, Emory University, Ga., and of the Steiner Clinic, Grady Memorial Hospital, Altanta, Ga.

TENNESSEE

Medical Assembly at Chattanooga.—The Tennessee Valley Medical Assembly will convene at Read House, Chattanooga, Oct. 3-4, under the sponsorship of the Chattanooga and Hamilton County Medical Society. Dr. Elmer Hess, Erie, Pa., President of the American Medical Association, will discuss "Management of Ureteral Calculi" Tuesday. Other out-of-state speakers and their first presentations include:

Philip Thorek, Chicago, Intestinal Obstruction.
Edgar Hull, New Orleans, Emergency Use of Corticoids and Corticotropins.
George T. Pack, New York, Carcinoma of the Breast.
Robert B. Greenblatt, Augusta, Ga., Use and Abuse of Endocrines in General Practice.
Arthur C. Curtis, Ann Arbor, Mich., Cutaneous Manifestations of Systemic Disease.
Brian B. Blades, Washington, D. C., Traumatic Injuries of the Chest.
Harry E. Bacon, Philadelphia, Anal and Rectal Lesions and Their Treatment.
Waldo E. Nelson, Philadelphia, Pediatric Care by the General Practitioner.
Alton Ochsner, New Orleans, Cancer of the Lung.
Thomas J. Dry, Rochester, Minn., Coronary Artery Disease.
Nicholson J. Eastman, Baltimore, Complications of Pregnancy.
Sara M. Jordan, Boston, The Irritable Colon.
Charles A. Doan, Columbus, Ohio, Diagnosis and Treatment of Acute Leukemic States.
Alexander Brunschwig, New York, Carcinoma of the Cervix.

Dr. Hess will be the honored guest at the banquet Monday, 7 p. m., which will be preceded by a cocktail hour, 5:30-6:30 p. m. John C. Krantz Jr., Ph.D., professor of pharmacology, University of Maryland School of Medicine, Baltimore, will present "The Simplicity to Wonder."

University News.—The University of Tennessee College of Medicine, Memphis, recently announced the appointment of Dr. Walter Fleischmann of the Veterans Administration Hospital on Lamar Avenue as assistant professor in the division of pediatrics and of Dr. Michael L. Gompertz of the Veterans Administration Hospital (Kennedy) as instructor in the division of medicine.——Dr. Edward H. Storer, Seattle, has been appointed assistant professor of surgery and director of the Surgical Research Laboratories, succeeding Dr. James D. Hardy, who resigned to become chairman of the department of surgery at the University of Mississippi School of Medicine in Jackson. ——The following promotions are among those recently announced by the University of Tennessee College of Medicine: from associate professor to professor, Dr. James N. Etteldorf (pediatrics); from assistant professor to associate professor, Dr. James A. Taylor (psychiatry); from instructor to assistant professor, Dr. Arthur D. Weatherhead (psychiatry) and Dr. Arliss H. Tuttle (pediatrics); from assistant to instructor, Dr. Will R. Mitchum (medicine).——At the school of biological sciences Dr. Albert Hand and Dr. William S. Cheek, instructors in the division of pathology and microbiology, have been made assistant professors, and Hortense Louckes, Ph.D., instructor in the division of physiology, has also been advanced to assistant professor.——Dr. William H. Morse, formerly of Blytheville, Ark., who recently returned from six years' service in the Army, has joined the staff of University of Tennessee College of Medicine as a full-time instructor in the department of urology.——Emile Van Handel, Ph.D., of Rotherdam, Holland, has joined the staff as research associate in the division of physiology. He will continue his investigations on fat metabolism and the genesis of arteriosclerosis.

TEXAS

Examinations for Local Health Directors.—The Texas State Department of Health announces an examination for director, local health unit 1A (salary range: $9,720-$12,120; possibly higher in metropolitan health departments). Positions may be located anywhere in the state where a vacancy exists for a local health unit director. The minimum qualifications are (1) an M.D. degree and one year's internship in a recognized hospital; (2) an M.P.H. degree or certification by the American Board of Preventive Medicine; (3) two years of field experience after internship in general public health practice; (4) three years of additional experience in special training, teaching, or practice in preventive medicine and public health; and (5) licensure to practice medicine in Texas. Applicants must be citizens of the United States. All original appointments to permanent positions are made for a probationary period of six months. Examinations will be conducted continuously in Austin and in various centers over the state. Applications for this position may be sent, until further notice, to: Merit System Council, 814 Littlefield Bldg., Austin, or to Dr. Henry A. Holle, Commissioner of Health, Texas State Department of Health, 410 E. Fifth St., Austin.

WEST VIRGINIA

Symposium on Pneumoconiosis.—The second Symposium on Coal Workers Pneumoconiosis will be presented at Golden Clinic, Memorial General Hospital, Elkins, Oct. 4. Dr. Oscar A. Sander, associate professor of medicine, Marquette University School of Medicine, Milwaukee, will be general chairman. The guest speakers include Lawrence B. Berger, chief, health branch, Bureau of Mines, Pittsburgh; Dr. Edward A. Gaensler, visiting thoracic surgeon, Boston City Hospital; John C. Gilson, M.B., director, Pneumoconiosis Unit, England; Dr. Adolph G. Kammer, head, department of occupational health, graduate school of public health, University of Pittsburgh School of Medicine; Dr. Joseph E. Martin Jr., Elkins; Dr. Thomas Parran, dean, graduate school of public health, University of Pittsburgh School of Medicine; Dr. Frank Princi, Kettering Laboratory, University of Cincinnati College of Medicine; and Dr. David H. Waterman, Knoxville, Tenn. For hotel reservations and information write Dr. Joseph E. Martin Jr., Golden Clinic, Elkins (phone: Elkins 1220).

Chest Physicians Meet at White Sulphur Springs.—The annual meeting of the Potomac chapter of the American College of Chest Physicians will be held at the Greenbrier, White Sulphur Springs, Oct. 7. The following program will be presented at the morning session:

Morphological Changes in Tuberculosis, Milford L. Hobbs, Morgantown.
Pulmonary Manifestations of Systemic Disease, Harold S. Pettit, Charleston, S. C.
Mediastinal Tumors, Edgar W. Davis, Washington, D. C.

In the afternoon "Medical Aspects of Cardiac Valvulotomy" will be discussed by Dr. C. Edward Leach, Baltimore, and "Angiocardiography in the Diagnosis of Thoracic Disease" by Dr. Herbert E. Sloan, Ann Arbor, Mich. At the completion of the formal program in the afternoon, there will be a radiological conference, with Dr. Harold S. Pettit, Charleston, S. C., as moderator. Mr. Charles E. Hodges, Charleston, managing director of the Charleston Chamber of Commerce, guest speaker at the annual luncheon, will have as his subject "West Virginia, Your Host—What Do You Know About It?"

Rural Health Conference.—The eighth annual Rural Health Conference will be held at Jackson's Mill Oct. 6 under the sponsorship of the West Virginia State Medical Association and the auspices of its rural health committee (Dr. Charles E. Staats, Charleston, chairman), with the support and cooperation of the West Virginia Farm Bureau, the Farm Women's Council, the Agricultural Extension Division of West Virginia University, and the state department of health. Aubrey O. Gates, Little Rock, Ark., field director, A. M. A. Council on Rural Health, will serve at both the morning and the afternoon sessions as moderator for a panel composed of representatives of the West Virginia Farm Bureau, Farm Women's Council, Agricultural Extension Service, West Virginia State Medical Association, state department of health, West Virginia University Medical Center, 4-H clubs, Future Farmers of America, and Blue Cross-Blue Shield plans in the state. The topics to be considered include: mental health; public health protection; rural ambulance service; the new medical center at West Virginia University; farm safety; home safety; physician distribution in rural areas; foods and nutrition; need for dental health services; and the Blue Cross-Blue Shield program in West Virginia. The West Virginia State Medical Association will be host at a luncheon in the Mt. Vernon Dining Hall. Part of the proceedings will be televised and shown subsequently before interested groups in the state.

WISCONSIN

University News.—The regents of the University of Wisconsin Medical School, Madison, recently approved a $1,609,152 schedule of costs for an addition to Service Memorial Institutes, the medical building. The structure will be a six-story building, facing Linden Drive at Charter Street in the medical center of the Madison campus. Four floors and part of the basement will be devoted to the work of the anatomy department, now housed in Science Hall. A new student laboratory and the department of physiological chemistry will be located on the fifth floor.

Orthopedic Field Clinics.—The Bureau for Handicapped Children, state department of public instruction, announces the following schedule for orthopedic field clinics: Racine, Oct. 5-6; Eau Claire, Oct. 10-11; Sheboygan, Oct. 19-20; La Crosse, Oct. 25-28. The clinics are conducted for persons under 21 years of age who come within the state's definition of a crippled child. It is preferred that referral be made by the family physician, but when this is not feasible arrangements may be made by writing to the bureau. Inquiries should be addressed to the Bureau for Handicapped Children, 146 North, State Capitol, Madison 2.

HAWAII

Society News.—Michael Heidelberger, Ph.D., professor of immunochemistry, Columbia University College of Physicians and Surgeons, New York, recently addressed the Hawaii chapter of the Society of the Sigma Xi on "Antigens and Antibodies."——Dr. Robert S. Pollack of San Francisco spoke before the Honolulu County Medical Society on "Cancer of the Head and Neck."——Dr. Munawar Ali, president of the Pakistan Medical Association, accompanied by Mrs. Ali, stopped in Honolulu on their medical trip around the world.

Personal.—Dr. Richard K. C. Lee, Honolulu, president of the Territorial Board of Health, recently returned from a good will tour of Asia where, under the sponsorship of the International Education Exchange Program of the State Department, he lectured in Korea, Formosa, Hong Kong, Singapore, Malaya, and Indonesia.——The new commanding officer of the Tripler

Army Hospital, Honolulu, is Brig. Gen. John F. Bohlender, M. C., who came to Hawaii from Ft. Sam Houston, Texas. Dr. Bohlender served in Hawaii at the old Tripler Hospital between 1931 and 1934 and during World War II served in the South West Pacific.

GENERAL

Society News.—The interim meeting of the house of delegates of the **Association of American Physicians and Surgeons, Inc.**, at the LaSalle Hotel, Chicago, Oct. 7-8, will have as banquet speaker Friday at 7 p. m. Mr. William L. McGrath, Cincinnati, United States Employer Delegate to the International Labor Organization. All physicians who are eligible for membership in the American Medical Association and their wives are welcome at the banquet. Per plate charge is $6.

Awards in Tuberculosis.—At the annual meeting of the National Tuberculosis Association in Milwaukee, William H. Feldman, D.V.M., professor of pathology at the Mayo Foundation Graduate School of the University of Minnesota, Rochester, was awarded the Trudeau medal, given annually for meritorious contribution on the cause, prevention, or treatment of tuberculosis. The Will Ross medal, awarded annually for distinguished contribution to the tuberculosis control movement in a field other than the medical sciences, was bestowed on Frederick D. Hopkins, Ph.B., Glen Rock, N. J., retired NTA executive secretary.

Meeting of Obstetricians and Gynecologists.—The Central Association of Obstetricians and Gynecologists will hold its 23rd annual meeting at the Deshler-Hilton Hotel, Columbus, Ohio, Oct. 6-8, under the presidency of Dr. Frank L. McPhail, Great Falls, Mont. The guest speaker, Dr. Daniel G. Morton, Los Angeles, will discuss "The Making of the Obstetrician-Gynecologist" at the close of the Thursday morning session. The annual prize award paper, "The Cardiac Output During Labor" by Drs. Charles H. Hendricks and Edward J. Quilligan, Cleveland, will precede the presidential address at the close of the Friday morning session. In all, 18 presentations have been scheduled.

Annual Meeting of Medical Illustrators.—The Association of Medical Illustrators will hold its 10th annual convention at the Barbizon-Plaza Hotel, New York City, Oct. 1-5. A symposium on publication problems involving the doctor-author, illustrator, copy editor, engraver, and printer has been scheduled for Monday afternoon and "Discussion of the Professional Problems of the Medical Illustrator" for Tuesday afternoon. At 5 p. m. Monday there will be a cocktail reception and the formal opening of the exhibit at the Hotel Art Gallery, with welcome by the medical schools in the New York area. The annual banquet will be held at 7 p. m. Tuesday.

Meeting on Psychosomatic Medicine.—The Academy of Psychosomatic Medicine will hold its second annual meeting Oct. 6-8 at the Plaza Hotel in New York City. The subject of this year's scientific program is "The Psychosomatic Aspects of Drug Administration." There is no registration fee. Guests may attend the banquet. The speakers will include: Dr. Lester L. Coleman, New York (Wonder Drugs—A Psychosocial Phenomenon); Dr. Harry Kozol, Boston (Epilepsy: Modern Treatment with Drugs as a Keystone of Psychosomatic Method); Dr. George B. Koelle, Philadelphia (The Clinical Neuropharmacology of Mescaline and *d*-Lysergic Acid); Dr. Joseph E. F. Riseman, Boston (Experiences with Placebos in the Treatment of Angina Pectoris); Dr. Mark D. Altschule, Belmont, Mass. (Ideas About the Metabolism of Epinephrine); and Dr. M. Murray Peshkin, New York (Psychosomatic Aspects of Drugs in Allergy Practice).

Meeting of Medical Record Librarians.—The 27th annual conference of the American Association of Medical Record Librarians will meet at the LaSalle Hotel, Chicago, Oct. 3-7. Tuesday afternoon Dr. Jack Masur, assistant surgeon general, U. S. Public Health Service, Washington, D. C., will discuss "Growth and Development of a Profession," and Phillip E. Ryan, executive director, National Health Council, New York, will outline the program of that organization. Dr. Charles W. Mayo, Rochester, Minn., will speak at the banquet at 7 p. m. Dr. Albert H. Holland Jr., medical director, Food and Drug Administration, Washington, D. C., and George F. Archambault, chief of pharmacy branch, division of hospitals, Department of Health, Education and Welfare, Washington, D. C., will participate in a round-table panel Wednesday morning on the recording and reporting of drug reactions. Dr. Charles U. Letourneau, director of the program in hospital administration, Northwestern University Medical School, Chicago, will be a panel member for the true and false audience-participation program of human aspects of supervision on Wednesday. A tour of Chicago hospitals is scheduled for Friday morning.

Annual Conference on Rheumatic Diseases.—The third annual Midwest Conference on Rheumatic Diseases will be held at Henry Ford Hospital, Detroit, Oct. 5, under the sponsorship of the Michigan chapter, Arthritis and Rheumatism Foundation, and the Michigan Rheumatism Society and under the cosponsorship of the department of postgraduate medicine, University of Michigan Medical School, Ann Arbor; the Academy of General Practice; Michigan State Medical Society; Wayne University College of Medicine, Detroit; and the Wayne County Medical Society. The following program will be presented:

Diagnosis and Treatment of Rheumatic Fever, Currier McEwen, New York.
Gout, Charley J. Smyth, Denver.
X-Ray in the Diagnosis of Rheumatic Diseases, Paul C. Hodges, Chicago.
Osteoarthritis, Russell L. Cecil, New York.
Diagnosis of Rheumatoid Arthritis, Joseph L. Hollander, Philadelphia.
Treatment of Rheumatoid Arthritis, Joseph J. Bunim, Bethesda, Md.
Diagnosis and Treatment of Rheumatoid Spondylitis, Richard H. Freyberg, New York.
Back Pain, Carl E. Badgley, Ann Arbor, Mich.
Physical Medicine in Rheumatic Diseases, Edward W. Lowman, New York.
The Painful Shoulder, Otto Stein Brocker, New York.

Registration fee will be $5 except for interns, residents, and physicians in the service, who are not being charged a registration fee. Inquiries may be directed to the general chairman, Dr. John W. Sigler, Henry Ford Hospital, Detroit.

Annual Clinical Conference.—The 33rd annual fall clinical conference of the Kansas City Southwest Clinical Society will convene at the Municipal Auditorium, Kansas City, Mo., Oct. 3-6. Dr. Elmer Hess, Erie, Pa., President, American Medical Association, will deliver an address on Monday entitled "Can the General Practitioner Be a Urologist?" The Edward Holman Skinner Memorial Lecture, "Considerations Concerning the Roentgen Diagnosis of Carcinoma of the Lung," will be presented Saturday by Dr. Eugene P. Pendergrass, Philadelphia. Other guest speakers and their first presentations will include:

Oscar T. Clagett, Rochester, Minn., Esophageal-Hiatus Hernia.
A. Carlton Ernstene, Cleveland, Newer Therapeutic Tools in Cardiovascular Disease.
Frederick W. Fitz, Chicago, The Doctor and His Heart.
John H. Gilmore, Chicago, Roentgenographic Survey of the Abdomen.
James H. Growdon, Little Rock, Ark., Surgery in the Diabetic Patient.
Edwin F. Hirsch, Chicago, Variations of the Blood Lipids in Health and Disease.
William S. Middleton, Washington, D. C., Zoonoses.
Rudolf J. Noer, Louisville, Ky., Changing Concepts in Treatment of Intestinal Obstruction.
Edward H. Rynearson, Rochester, Minn., Varieties of Diabetes.
Theodore E. Sanders, St. Louis, Management of Acute Eye Emergency.
Harris B. Shumacker Jr., Indianapolis, Management of Acute Pancreatitis and Recurrent Pancreatitis.
Newton D. Smith, Fort Worth, Texas, Relationship of Anorectal Disease to General Medicine.
J. Robert Willson, Philadelphia, Practical Aids in Gynecologic Diagnosis.
Stewart Wolf, Oklahoma City, Gastrointestinal Tract of the Aged.

A clinicopathological conference and a conference on the management of diabetes have been scheduled, as have the following panels: Nonmalignant Lung Diseases; Postcholecystectomy Syndrome; Bleeding Gastrointestinal Lesions; Urinary Tract Infections; and Hormones and Newer Drugs—Their Use and Abuse. Operative clinics, clinical demonstrations, and a series on "How You Do It" will be presented on color television Sunday, Monday, and Tuesday.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories and possessions in the weeks ended as indicated:

Area	Sept. 10, 1955		
	Paralytic Type	Total Cases Reported	Sept. 11, 1954, Total
New England States			
Maine	7	22	5
New Hampshire	..	20	1
Vermont	5	13	6
	116	290	83
	5	33	12
	8	75	23
Middle Atlantic States			
New York	59	245	122
New Jersey	..	66	57
Pennsylvania	..	73	104
East North Central States			
Ohio	18	97	137
Indiana	8	27	46
Illinois	34	112	148
Michigan	16	68	115
Wisconsin	91	224	17
West North Central States			
Minnesota	16	45	38
Iowa	9	33	101
Missouri	3	15	51
North Dakota	2	5	13
South Dakota	..	1	5
Nebraska	8	19	88
Kansas	3	18	56
South Atlantic States			
Delaware	..	3	..
Maryland	4	12	15
District of Columbia	2	4	4
Virginia	13	20	44
West Virginia	11	20	42
North Carolina	7	21	37
South Carolina	9	22	13
Georgia	3	6	55
Florida	5	23	33
East South Central States			
Kentucky	7	19	82
	6	20	34
	5	12	19
	..	3	13
West South Central States			
Arkansas	4	9	16
Louisiana	5	17	19
Oklahoma	2	29	29
Texas	36	94	131
Mountain States			
Montana	3	10	7
Idaho	1	5	11
Wyoming	..	2	20
Colorado	2	12	24
New Mexico	2	5	17
Arizona	3	8	9
Utah	..	7	1
Nevada	..	3	5
Pacific States			
Washington	21	38	25
Oregon	10	20	27
California	29	64	159
Territories and Possessions			
Alaska	2	2	11
Hawaii	3	4	..
Puerto Rico	1	1	..
Total	604	2,016	2,130

CANADA

Meeting on Fertility.—*The second annual meeting of the Canadian Society for the Study of Fertility will convene at the Royal York Hotel, Toronto, Oct. 6-8. The sessions will open at 9 a. m. Thursday, followed by a panel discussion on the general practitioner's role in diagnosis and treatment of infertility. At 11 a. m. "Experience with Uterotubal Insufflation by a New Kymographic Insufflation with* Co_2 *Derived from an Effervescent Tablet; Demonstration of Apparatus and Graphs" will be outlined by Dr. Isidor C. Rubin, New York. A film, "The Physiology of Reproduction," and a film on ovulation in the rat (by permission of Dr. Richard J. Blandau, Seattle) will precede discussion at 3:15 p. m. of "Treatment of Female Sterility with X-Ray to the Ovaries and Pituitary with Special Reference to Congenital Abnormalities of the Offspring" by Dr. Ira I. Kaplan, New York. The Thursday session will end with "The Occurrence of Pregnancy with Very Low Sperm Counts" by Dr. Moses M. Braunstein, Montreal. Dr. John O. Haman, San Francisco, former* president, American Society for the Study of Sterility, will be chairman for the Friday morning program, including: "Impact of the Emotions on a Patient with Infertility" by Dr. A. Herbert Marbach, Philadelphia; "Effects of Psychic Stimuli on Uterine Contraction Patterns and Their Relationship to Fertility" by Dr. William M. Bickers, Richmond, Va.; and "Surgical Aspects of Male Sterility" by Donald Young, F. R. C. S. (E), Liverpool, England, for which the discussant will be Dr. Fred A. Simmons, Boston. The following program will be presented Friday afternoon:

Physiology of Endometrium in Relation to Conception, Edward C. Hughes, Syracuse, N. Y. (discussant, Clyde Randall, Buffalo)

Polycystic Diseases of the Ovaries, George A. Simpson, F.R.C.S. (C), Montreal.

Fertility Resulting from Pelvic Pyrexia Induced by Bipolar Intravaginal Diathermy, Abner I. Weisman, New York.

Saturday will be devoted to clinical demonstrations at Toronto hospitals. The convention fee of $10 includes registration and banquet charges. For information, write Dr. Earl R. Plunkett, Secretary-Treasurer, 469 Waterloo St., London, Ontario, Canada.

FOREIGN

Postgraduate Lectures in Madrid.—The Hospital Provincial de Madrid, Spain, announces the eighth course of medicosurgical postgraduate lectures, to be delivered Nov. 2-30 in the Hospital Provincial de Madrid, the Policlinica de Aparato Digestivo of the Faculty of Medicine of Madrid, and the Clinica de la Concepcion of Madrid. The topics are: "Darkness and Horizons of Digestive Pathology," "Functional and Organic Changes of the Biliary Tract," "Granulomatous Enteritis," and "Differential Diagnosis of True and False Acute Abdomen." There will also be a seminar, practical demonstrations on roentgen and endoscopic techniques and on clinical laboratory analysis, and a course on anesthesia and techniques in surgery of the digestive tract. Dr. Richard B. Cattell of the Lahey Clinic, Boston, will serve on the faculty. Applications for registration should be made to the Secretaria particular del Dr. C. Gonzalez-Bueno, calle de Villanueva, 12, Madrid, Spain, before Oct. 15.

CORRECTIONS

Residency Training in Psychiatry.—In the Internship and Residency Number of The Journal, Sept. 24, 1955, page 334, the following data should have been indicated for the residency training program in psychiatry: Veterans Administration Hospital, North Little Rock, Ark.: first year residencies offered, 4; total residencies offered, 12; length of approved program (years), 3.

Parts of Medical Center Completed.—In the news item in The Journal, Aug. 13, 1955, page 1375, entitled "Parts of Medical Center Completed," the statement was made that the Loyola University Stritch School of Medicine and College of Dentistry building was at present under construction. Dr. John F. Sheehan, dean of the school of medicine, writes to point out that as yet there is no construction under way and that present plans call for the erection of the new Stritch School of Medicine building in the northwest part of Chicago on a tract of land recently annexed from Skokie. The dental school, Dr. Sheehan states, will remain in its present location.

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Oral.* New York City, Oct. 23-27. *Written.* Various locations in United States and Canada, July 20, 1956. Final date for filing application is Jan. 20. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15.

American Board of Dermatology and Syphilology: *Oral.* Washington, D. C., Oct. 14-16. Final date for filing application was March 15. Sec., Dr. B. M. Kesten, One Haven Ave., New York 32, N. Y.

American board of Internal Medicine: *Oral.* Chicago, Nov. 30-Dec. 1. *Subspecialties. Cardiovascular Disease.* Chicago, Nov. 30. The closing date for acceptance of application for gastroenterology was Feb. 1, and for cardiovascular disease the closing date was June 1. Exec. Sec., Dr. William A. Werrell, 1 West Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* New Haven, November. Oral examinations given in Spring and Fall. Final date for filing application for the Spring examination is October 1; for the Fall examination April 1. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

American Board of Obstetrics and Gynecology: *Written Examination and submission of Case Reports. Part I.* Various locations in United States and Canada, and military centers outside of the Continental United States, Feb. 3, 1956. Final date for filing application is Oct. 1. *Oral and Pathological Examinations. Part II.* Chicago, May 11-20, 1956. Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: *Practical Examination.* Chicago, Oct. 3-7. Written. January 24-26, 1956. *Practical Examination.* San Francisco, June 18-21, St. Louis, Oct. 20-25. Applications for 1957 written examination must be filed before July 1, 1956. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

American Board of Orthopaedic Surgery: *Oral.* Jan. 26-27. Final date for filing application was Aug. 15. *Part I. Oral and written.* Various centers, April 1956. Final date for filing application is Nov. 30. Sec., Dr. Harold A. Sofield, 116 South Michigan Ave., Chicago 3.

American Board of Otolaryngology: *Oral.* Chicago, Oct. 3-7. Final date for filing application is April. Sec., Dr. Dean M Lierle, University Hospitals, Iowa City.

American Board of Pathology: *Written and Practical.* Chicago, Oct. 6-8. Sec., Dr. William B. Wartman, 303 E. Chicago Ave., Chicago.

American Board of Pediatrics: *Oral.* Chicago, Oct. 7-9; and Washington, D. C., Dec. 2-4. Admin. Sec., Mrs. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Physical Medicine and Rehabilitation. *Parts I and II.* Chicago, June 16-17. Sec., Dr. Earl C. Elkins, 200 First St., S. W., Rochester, Minn.

American Board of Preventive Medicine: *Certification in Public Health.* Kansas City, Mo., Nov. 10-12. Sec.-Treas., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore 5.

American Board of Psychiatry and Neurology: San Francisco, Oct. 17-18; New York City, December, Philadelphia, April 16-18, 1956. Sec., Dr. David A. Boyd, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: Chicago, Dec. 4. Final date for filing applications for the fall examination was July 1. Candidates who will complete their training by Dec. 31 will be eligible to appear for this examination. Sec., Dr. B. R. Kirklin, Kahler Hotel Bldg., Rochester, Minn.

American Board of Surgery: *Part I.* Centers throughout the United States, in Europe and in the Far East, Oct. 26 and March 28. Closing date for the October examination was July 1 and for the March examination is December 1. *Part II.* Chicago, Oct. 27-28; New York City, Nov. 14-15; St. Louis, Dec. 12-13; New Orleans, Jan. 16-17; Los Angeles, Feb. 13-14; San Francisco, Feb. 16-17; Durham, Mar. 12-13; Boston, May 14-15 and Philadelphia, June 4-5. Sec., Dr. John B. Flick, 255 S. Fifteenth St., Philadelphia 2.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

National Conference on Physicians and Schools, Moraine-on-the-Lake Hotel, Highland Park, Ill., Oct. 12-14. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago, Director.

Academy of Psychosomatic Medicine, Hotel Plaza, New York, Oct. 6-8. Dr. Ethan Allan Brown, 75 Bay State Road, Boston 15, Secretary.

American Academy for Cerebral Palsy, Claridge Hotel, Memphis, Tenn., Oct. 10-12. Dr. Robert A. Knight, 869 Madison Ave., Memphis 3, Tenn., Secretary.

American Academy of Neurological Surgery, The Homestead, Hot Springs, Va., Oct. 27-29. Dr. Eben Alexander Jr., Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago, Oct. 9-14. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

American Academy of Pediatrics, Palmer House, Chicago, Oct. 3-6. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Executive Secretary.

American Association of Blood Banks, Palmer House, Chicago, Nov. 19-21. Miss Marjorie Saunders, 3707 Gaston Ave., Dallas 10, Texas, Secretary.

American Association of Medical Clinics, Curtis Hotel, Minneapolis, Nov. 4-6. Dr. Edwin P. Jordan, Box 58, Charlottesville, Va., Executive Director.

American Association of Medical Record Librarians, LaSalle Hotel, Chicago, Oct. 3-7. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Director.

American Association for the Surgery of Trauma, Drake Hotel, Chicago, Oct. 27-29. Dr. James K. Stack, 700 N. Michigan Blvd., Chicago 11, Secretary.

American Clinical and Climatological Association, The Homestead, Hot Springs, Va., Oct. 31-Nov. 2. Dr. M. N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

American College of Anesthesiologists, Hotel Statler, Boston, Nov. 4-5. Mr. John H. Hunt, 188 West Randolph St., Chicago 1, Executive Secretary.

American College of Cardiology Interim Meeting, Hotel Claridge, Memphis, Tenn., Nov. 10-12. Dr. Philip Reichert, Empire State Bldg., New York 1, Secretary.

American College of Gastroenterology, Hotel Shoreland, Chicago, Oct. 24-26. Dr. Joseph Shaiken, 33 West 60th St., New York 23, Secretary.

American College of Surgeons, Conrad-Hilton Hotel, Chicago, Oct. 31-Nov. 4. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Secretary.

American Dental Association, San Francisco, Oct. 17-20. Dr. Harold Hillenbrand, 222 East Superior St., Chicago 11, General Secretary.

American Heart Association, Yung Hotel, New Orleans, Oct. 22-26. Mr. Irving Hexter, 44 East 23d St., New York 10, Secretary.

American Medical Women's Association, Board Meeting, Netherlands-Plaza Hotel, Cincinnati, Nov. 11-13. Miss Lillian T. Majally, 1790 Broadway, New York 19, Executive Secretary.

American Public Health Association, Muehlebach Hotel and Municipal Auditorium, Kansas City, Mo., Nov. 14-18. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American School Health Association, Hotel President, Kansas City, Mo., Nov. 14-18. Dr. A. O. DeWeese, 515 East Main St., Kent, Ohio, Secretary.

American Society of Anesthesiologists, Hotel Statler, Boston, Oct. 29-Nov. 3. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago 1, Secretary.

American Society of Clinical Pathologists, Drake Hotel, Chicago, Oct. 10-15. Dr. Clyde G. Culbertson, 1040-1232 West Michigan St., Indianapolis, Secretary.

American Society for the Study of Arteriosclerosis, Hotel Sheraton, Chicago, Nov. 6-7. Dr. O. J. Pollak, P.O. Box 228, Dover, Del., Secretary.

American Society of Tropical Medicine and Hygiene, Somerset Hotel, Boston, Nov. 2-5. Dr. John E. Larsh Jr., Dept. of Parasitology, School of Public Health, Chapel Hill, N. C., Secretary.

Association of American Medical Colleges, New Ocean House, Swampscott, Mass., Oct. 24-26. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

Association of American Physicians and Surgeons, Chicago, Oct. 7-8. Mr. Harry E. Northam, 185 N. Wabash Ave., Chicago 1, Executive Secretary.

Association of Life Insurance Medical Directors of America, Hotel Statler, New York, Oct. 19-21. Dr. Henry B. Kirkland, P. O. Box 594, Newark, N. J., Secretary.

Association of Medical Illustrators, Hotel Barbizon Plaza, New York, Oct. 1-3. Miss Rose M. Reynolds, Univ. of Nebraska College of Medicine, Omaha 5, Neb., Corresponding Secretary.

Association of Military Surgeons of the U. S., Hotel Statler, Washington, D. C., Nov. 7-9. Colonel Robert E. Bitner, 1726 I St. N.W., Washington 6, D. C., Secretary.

Association of State and Territorial Health Officers, Hotel Washington, Washington, D. C., Nov. 6-12. Dr. Franklin D. Yoder, State Board of Health, Cheyenne, Wyo., Secretary.

Central Association of Obstetricians and Gynecologists, Deshler-Hilton Hotel, Columbus, Ohio, Oct. 5-8. Dr. Edwin J. DeCosta, Suite 602, 116 S. Michigan Ave., Chicago 3, Secretary.

Central Neuropsychiatric Association, The Broadmoor, Colorado Springs, Colo., Oct. 20-22. Dr. Hamilton Ford, 112 North Boulevard, Galveston, Tex., Secretary.

Central Society for Clinical Research, Drake Hotel, Chicago, Nov. 4-5. Dr. Robert H. Ebert, 950 East 59th St., Chicago 37, Secretary.

College of American Pathologists, Drake Hotel, Chicago, Oct. 10-15. Dr. Arthur H. Dearing, 203 N. Wabash Ave., Chicago 1, Executive Secretary.

Congress of Neurological Surgeons, Hotel Statler, Los Angeles, Oct. 27-29. Dr. Philip D. Gordy, 1007 Delaware Ave., Wilmington, Del., Secretary.

Delaware, Medical Society of, Delaware Academy of Medicine, Wilmington, Oct. 17-18. Dr. Norman L. Cannon, 621 Delaware Ave., Wilmington, Secretary.

District of Columbia, Medical Society of the, Hotel Statler, Washington, D. C., Oct. 10-12. Mr. Theodore Wiprud, 1718 M St., N.W., Washington 6, D. C., Executive Director.

Gerontological Society, Sheraton-Belvedere Hotel, Baltimore, Oct. 27-29. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

Gulf Coast Clinical Society, Pensacola, Fla., Oct. 27-28. Dr. Barkley Beidleman, 1750 N. Palafox St., Pensacola, Fla., Secretary.

Indiana State Medical Association, French Lick Springs Hotel, French Lick, Oct. 16-19. Mr. James A. Waggener, 23 East Ohio St., Indianapolis 4, Executive Secretary.

Inter-Society Cytology Council, Statler Hotel, Cleveland, Nov. 11-12. Dr. Paul F. Fletcher, 634 N. Grand Blvd., St. Louis 3, Secretary.

Interstate Post Graduate Medical Association of North America, Municipal Auditorium, Milwaukee, Nov. 14-17. Mr. Roy T. Ragatz, 207 Gay Bldg., Madison 3, Wis., Executive Director.

Kansas City Southwest Clinical Society, Municipal Auditorium, Kansas City, Mo., Oct. 3-6. Dr. W. M. Kitchen, 306 E. Twelfth St., Kansas City 6e, Mo., Secretary.

Midwest Conference on Rheumatic Diseases, Henry Ford Hospital, Detroit, Oct. 5. Dr. J. J. Lightbody, 7338 Woodward Ave., Detroit 2, Medical Director.

Midwestern Section of American Federation for Clinical Research, Thorne Hall, Northwestern University, and Drake Hotel, Chicago, Nov. 3. Dr. Robert J Glaser, Barnes Hospital, St. Louis 10, Secretary.

Mississippi Valley Trudeau Society, Hotel Savery, Des Moines, Iowa, Oct. 14. Dr. Harold G. Curtis, Sunny Acres, Cuyahoga County Tuberculosis Hospital, Cleveland 22, Chairman, Program Committee.

National Association for Mental Health, Indianapolis, Nov. 4-6. Mr. Robert M. Heininger, 1790 Broadway, New York 19, Director.

Oklahoma City Clinical Society Conference, Oklahoma City, Oct. 24-27. Dr. Charles E. Leonard, 512 Medical Arts Bldg., Oklahoma City 2, Secretary.

Omaha Mid-West Clinical Society, Hotel Paxton, Omaha, Oct. 24-27. Mrs. Anne K. Ramsey, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

Regional Meetings, American College of Physicians:

- Billings, Mont., Oct. 7-8. Dr. Harold W. Gregg, 103 North Wyoming St., Butte, Governor.
- Charleston, S. C., Oct. 7-8. Dr. Robert Wilson, 165 Rutledge Ave., Charleston, S. C., Governor.
- Buffalo, N. Y., Oct. 14. Dr. John H. Talbot, 100 High St., Buffalo 3, N. Y., Governor.
- Madison, Wis., Oct. 15. Dr. Frederick W. Madison, 425 East Wisconsin Ave., Milwaukee 2, Governor.
- Louisville, Ky., Nov. 5. Dr. Sam A. Overstreet, 332 West Broadway, Louisville, Ky., Governor.
- Newark, N. J., Nov. 9. Dr. Edward C. Klein Jr., 6 S. Kingsman Rd., South Orange, N. J., Governor.

Society of Clinical Surgery, Hotel Roosevelt, New Orleans, Nov. 11-12. Dr. Frank F. Allbritten Jr., University of Kansas Medical Center, Kansas City, Mo., Secretary.

Southern Medical Association, Shamrock Hotel, Houston, Texas, Nov. 14-17. Mr. V. .O. Foster, 1020 Empire Bldg., Birmingham 3, Ala., Secretary-Manager.

Southern Society of Cancer Cytology, Houston, Texas, Nov. 14-17. Dr. J. Ernest Ayre, 1155 N.W. 14th St., Miami, Fla., Secretary.

Southwestern Medical Association, Phoenix, Ariz., Nov. 16-18. Dr. Celso C. Stapp, 800 Montana St., El Paso, Texas, Secretary.

State Medical Journal Conference, Chicago, Nov. 7-8. Mr. Alfred J. Jackson, 535 N. Dearborn St., Chicago 10, Director.

Tennessee Valley Medical Assembly, Read House, Chattanooga, Tenn., Oct. 3-4. Dr. Harry E. Jones, 109 Medical Arts Bldg., Chattanooga 2, Tenn., Secretary.

The Constantinian Society, Sheraton-Park Hotel, Washington, D. C., Oct. 26-29. Dr. C. F. Shook, P. O. Box 1035-36, Toledo 1, Ohio, Secretary.

Virginia, Medical Society of, Hotel Jefferson, Richmond, Oct. 16-19. Mr. Robert I. Howard, 105 West Franklin St., Richmond, Executive Secretary.

Western Orthopedic Association, The Reef, Honolulu, Hawaii, Nov. 7-10. Dr. Ivar J. Larsen, 1133 Punchbowl, Honolulu 13, Hawaii, Secretary.

Western Society of Electro-Encephalography, Westward Ho Hotel, Phoenix, Ariz., Nov. 10-12. Dr. Sylvester N. Berens, 902 Boren Ave., Seattle, Secretary.

FOREIGN AND INTERNATIONAL

Canadian Society for the Study of Fertility, Royal York Hotel, Toronto, Ont., Canada, Oct. 6-8. Dr. Earl R. Plunkett, 469 Waterloo St., London, Ont., Canada, Secretary.

Conference of International Union for Health Education of the Public, Rome, Italy, Apr. 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1er, France, Secretary-General.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Statler, Boston, Mass., U.S.A., Sept. 3-8, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of International Society for Research on Anesthesia, Miami Beach, Fla., U.S.A., Mar. 12-15, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, May 1956. Prof. Umberto Serafini, Largo della Gancia 5, Rome, Italy, Secretary-General.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik. Hamburg-Eppendorf, Germany.

International Academy of Legal and Social Medicine, Plenary Conference, Genoa, Italy, Oct. 13-17. Prof. Domenico Macaggi, Institut de Medicine legale, Universite de Genes, Genes, Italy, President.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Colloquium on Chlorpromazine and Neuroleptic Agents in Psycotherapy, Ste Anne Clinic of Mental Diseases, Paris, France, Oct. 20-22. Prof. Jean Delay, College of Medicine of Paris, 1, rue Cabanio, Paris 14e, France, Chairman.

International Congress of Allergology, Rio de Janeiro, Brazil, S. A., Nov. 6-13. Dr. Bernard N. Halpern, 197 boulevard St. Germain, Paris 7^{e}, France, Secretary General.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress on Diseases of the Chest, Cologne, Germany, Aug. 19-23, 1956. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, U. S. A., Executive Director.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Palmer House, Chicago, Illinois, U. S. A., Sept. 9-13, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of International Society of Bronchoesophagology, Buenos Aires, Argentina, S. A., Oct. 28-29. Dr. Juan Carlos Arauz, Cangallo 4015, Buenos Aires, Argentina, S. A., Secretary General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Prof. P. Delore, 13 rue Jarente, Lyon, France, Secretary-General.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for Physical Therapy, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International General Medical Congress, University of Rosario Medical College, Rosario, Argentina, S. A., Nov. 7-12. Dean Jose Imhoff, Santa Fé 3100, Rosario, Argentina, S. A., Chairman.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P. O Box 672, Cairns, N.Q., Australia, Secretary.

Pan American Congress of International College of Surgeons, Mendoza City, Argentina, S. A., Oct. 22-26. For information address: Secretary, Caseros Av. 2154, Buenos Aires, Argentina, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Medical Social Convention, Bogota, Colombia, S. A., Oct. 15-22. Dr. Leopoldo E. Araujo, Avenida de los Presidentes Num. 506, Apartado 2589, La Habana, Cuba, Secretary.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

Venezuelan Congress of Medical Sciences, Caracas, Venezuela, S. A , Nov. 18-26. Dr. A. L. Briceno Rossi, Apartado 4412, Ofic. del Este, Caracas, Venezuela, S. A., Secretary General.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of THE JOURNAL. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, Oct. 3

ABC-TV, 8 p. m. EDT. "TV Reader's Digest" drama is titled "Six Hours of Surgery" and tells of the "intense personal problems of five persons involved in a delicate heart operation on a 16-year-old boy."

NBC-TV, 9 p. m. EDT. "Medic" presents "And There Was Light," second of a two-part episode on postpartum psychosis. In this show, a young mother who sought psychiatric treatment after the birth of a baby conquers her illness and returns to her family.

ABC-TV, 9:30 p. m. EDT. "Medical Horizons" televises the activities of a physiological emergency team at the Sloan-Kettering Institute, Memorial Center for Cancer and Allied Diseases, New York. Presented in cooperation with the American Medical Association.

Wednesday, Oct. 5

NBC-TV, 11:30 a. m. EDT. "Home" presents "Medical and Health News with Howard Whitman."

Sunday, Oct. 9

NBC-TV, 3 p. m. EDT. "Dr. Spock"—Inaugural telecast of a new half-hour show on child care and development, featuring Dr. Benjamin Spock.

MAGAZINES

Collier's, Sept. 30, 1955

"The Doctor with 2,300 Patients a Day," by Robert Bendiner

Dr. Henry M. Friedman, public health inspector at the Port of New York, "has protected these shores from the kind of contagion that for centuries has traveled by ship." He has given swift physical examinations to thousands a day for so long that he often can make a diagnosis at a glance.

Look, Oct. 4, 1955

"VIP—The World's 100 Most Important People," by Donald Robinson

The author selects 8 men in the health field in his listing of the 100 most important people: Dr. Jonas Salk, Selman A. Waksman, John Enders, Dr. Hans A. Krebs, Dr. Bernard N. Halpern, Dr. Hans Selye, Tadeus Reichstein, and Bernardo A. Houssay.

Parade, Oct. 2, 1955

"The Doctors Who Try Our Patience," by Hannah Smith

In answer to a recent *Parade* article entitled "The Patients Who Drive Us Crazy," the author writes of such doctors as "Dr. Joyboy, the optimist" (who can't believe there is anything seriously wrong); "the triple tester" (who won't make a simple diagnosis without a battery of tests); "the jargon juggler" (who likes to keep things mysterious); "the man with the saw" (who performs unnecessary surgery); and others.

Redbook, October, 1955

"The Doctors Who Fell in Love," by Bob Willoughby and Wallace Croatman

A picture story showing the devotion—to their patients and to each other—of Dr. Will Kamprath and his wife, Dr. Coll Kamprath, who practice in the small town of Utica, Neb.

"How Safe Are School Lunches?" by Alice Lake

"Recent reports of disease outbreaks indicate that too often school lunches are making children sick." The author points out the hazards of mass food preparation and recommends that parents make sure that conditions are sanitary in their schools.

"Check List for Your Child's Health," by Alton L. Blakeslee

"Now—before the cold weather starts—is a good time to have your child examined by a pediatrician or your family physician." The author presents a list "designed to give you an advance idea of what points your doctor will cover in his examination, and also what he is likely to ask you about your child's health history."

Woman's Home Companion, October, 1955

"Abortion in America Today," by Morton Sontheimer

A discussion of legal and medical problems involved in both criminal abortions and legal abortions. "In America today decisions on legal abortions vary from doctor to doctor, from hospital to hospital. Doctors didn't create this fluctuating situation and they don't like it. It has been deposited in their laps by public indifference and vast national ignorance of our present abortion problem. . . . And linked to the legal or therapeutic abortion is the larger problem of criminal abortion. Most of these illegal operations are also performed by doctors, according to informed opinion."

Household, October, 1955

"When Should You Change Your Doctor?" by Lawrence Galton

The purpose of this article is "to emphasize the importance of understanding what good medical treatment is—whether the doctor is an outright bungler or a highly recommended physician who is capable, but who isn't helping as much as you might reasonably expect, with whom you don't get along well, or from whom you come away feeling frustrated."

Reader's Digest, October, 1955

"What the Doctor Sees in You," by J. D. Ratcliff

"Of all the diagnostic aids that scientific medicine depends upon today, the X-ray is one of the most vital." Mr. Ratcliff explains the various uses of this aid and cites examples of the progress radiology has made in recent years.

"Memphis Declares War on a Woman-Killer," by Lois Mattox Miller

The story of what the author calls "the boldest health crusade in history." National, state, and local groups promoted the mass examination of women in Memphis and Shelby County, Tenn., to find unsuspected cases of cancer of the cervix. Nearly 90,000 women responded, and of that number 1,800 were called back for further examination.

Family Circle, October, 1955

"Rheumatic Fever Can Be Curbed," by Ruth and Edward Brecher

"By means of wholehearted cooperation among teachers, parents, nurses, doctors, and heart associations . . . countless children are being protected from rheumatic fever—a disease that every year kills or disables more American children than polio." The article tells readers that "if your child has a sore throat, phone your doctor right away" and lists questions that such parents should be prepared to answer.

"Eat Your Way to Good Health," by Lawrence Galton

A report on how "nutritional therapy" is helping to fight various disease conditions. The article quotes the *Journal of Postgraduate Medicine* as saying: "Among some groups of patients it is likely that more than 50% could be helped by proper dietary advice. The public badly needs guidance from trained physicians in how to obtain better health through better nutrition."

GOVERNMENT SERVICES

ARMY

Physician Needed at Ordnance Depot in Alabama.—The position of civilian medical officer at the ordnance depot near Anniston, Ala., will become vacant Oct. 1 and applications for a successor are now being received. The successful applicant will be on a civil service status and receive a gross annual salary of $10,065 with paid vacations from 13 to 26 working days a year and 8 federal holidays. The regular tour of duty is eight hours a day, five days a week. The major duties of this position are the examination of employees and applicants, the first-aid treatment of injured employees, and the sanitary inspection of facilities. A staff of nurses and modern medical facilities are available.

This Army ordnance depot has a civilian strength of about 4,350 with 16 military officers and their families and no enlisted personnel. It receives, stores, and maintains automotive equipment and supplies and ammunition. It is located about 60 miles from Birmingham and 110 miles from Atlanta and covers an area of 16,000 acres. Adjacent to the depot are housing facilities for about 400 families at reasonable rental. The medical officer is encouraged to live in one of these residences, where he may supplement his salary by being available to the residents after duty hours. Applicants should address their letters to the Civilian Personnel Officer, Anniston Ordnance Depot, Anniston, Ala., on receipt of which arrangements will be made for interviews.

Color Television System for Army Medical Center.—The nation's first installation of compatible color television for hospital use will be made by the Radio Corporation of America to serve three government medical activities located at the Walter Reed Army Medical Center, Washington, D. C. The installation will provide three complete color television systems for use by the Armed Forces Institute of Pathology, the Walter Reed Army Hospital, and the Army Medical Service Graduate School. Contract for the color television system was awarded on the basis of a low bid of $425,800. Installation, now underway, is scheduled for completion early next year. The system will be operated by the Army Signal Corps. It will be available to other Defense Department agencies in the event of national emergencies. Ultimately, the system will be expanded to connect other governmental hospitals and military medical installations into a medical network for exchange of information and services. The independent but interconnected installation provides the government services with maximum flexibility and utilization of the color TV system. For example, it will be possible for a pathologist at the AFIP to view an operation at the Walter Reed Hospital two blocks away. If the removed tissue requires laboratory pathological investigation, it can be sent by pneumatic tube direct from the Walter Reed Hospital surgery to the AFIP. Then, while the surgeon who removed the tissue watches on his TV monitor, the pathologist can prepare the specimen for slide projection and hold a two-way picture and voice consultation with the surgeon. This initial application of compatible color television, operating over distances measured in city blocks . . . promises an eventual national medical TV network that will enable doctors, surgeons, and research scientists anywhere in the country to obtain directly the consultation services of specialists, demonstrations of latest advances in surgical and medical procedure, and advanced medical teaching.

ATOMIC ENERGY COMMISSION

New Director of Division of Biology and Medicine.—The U. S. Atomic Energy Commission announces the appointment of Dr. Charles L. Dunham as director of the commission's division of biology and medicine, effective Oct. 1. Dr. Dunham will succeed Dr. John C. Bugher, who will return to the Rockefeller Foundation, which recently announced his appointment as director of medical education and public health. Dr. Dunham has been deputy director of the division since July, 1954. Appointment of Dr. Charles W. Schilling as deputy director of the division succeeding Dr. Dunham also was announced. Dr. Shilling joined the commission in July, 1955, on his retirement as captain, Medical Corps, U. S. Navy. Dr. Shilling had served in the Navy for 28 years and was widely known for his role as senior medical officer in the rescue of personnel from the stricken submarine Squalus in 1939.

NAVY

Course for Reserve Officers.—A course in Medical Aspects of Special Weapons and Radioactive Isotopes for active and inactive regular and reserve medical department officers will convene at the Naval Medical School, Bethesda, Md., on Monday, Oct. 3, 1955, and continue to Saturday, Oct. 15. The first week of instruction will be on Medical Aspects of Special Weapons and Radioactive Isotopes with particular reference to personnel casualties from atomic explosions. During the second week professional and administrative topics will be presented including a symposium on reserve medical programs.

Inactive reserve medical department officers desiring to attend should submit their request for 14 days' training duty to their commandant's office at the earliest practicable date. Messing facilities are available. BOQ facilities are limited and will be available on a first-come, first-served basis only. The commandants of the first, third, fourth, fifth, sixth, eighth, and ninth naval districts and Potomac River naval command have each been assigned a quota for this course. Officers of the medical department on active duty may be given "authorization orders" (at no expense to the government). Orders should direct reporting to the commanding officer, U. S. Naval Medical School, NNMC, Bethesda, Md., prior to 4 p. m., Sunday, Oct. 2, 1955; officers will be detached on Saturday morning, Oct. 15, 1955. Officers availing themselves of this training are requested to assure that an advance copy of orders issued be forwarded to the reporting activity as early as possible.

VETERANS ADMINISTRATION

Rehabilitation of Aged Veterans.—Veterans Administration launched a program on Sept. 8 of planned living to rehabilitate aged veterans in its domiciliary "homes." The new program is designed to rehabilitate as many domiciliary members as possible to enable them to become productive citizens again in their home communities. For those not susceptible to this type of rehabilitation, the program is designed to enable them to enjoy their remaining years more fully with security and dignity, VA said. This program will be applicable to the 17,000 members presently receiving sheltered care in the 17 VA domiciliaries. Domiciliary members are disabled veterans who are so incapacitated that they are unable to earn a living but do not require full-time nursing or hospital care. Most domiciliary members are in the older age brackets.

The new program has three objectives: (1) to provide a place where eligible disabled veterans can live under conditions that will promote health and contentment, (2) to furnish authorized articles and services that they are unable to provide for themselves, including necessary medical care and hospitalization, and (3) to institute rehabilitation measures so as to enable each disabled veteran to return to his community or, where this is not possible, to function at maximum capacity in domiciliary status. The program will have an activity planning board that will draft an individual plan for each member. This daily plan of living will be based on a full medical evaluation and will be supplementary to prescribed medical care by contributing to medical and social rehabilitation objectives. VA said members will be encouraged to apply for jobs in which they have had previous experience or for which they may become qualified through training. These jobs may be in the domiciliaries themselves, or in VA hospitals or centers. When they are sufficiently rehabilitated to leave the domiciliaries as members, they may be employed by VA as regular civil service employees if they qualify or they may seek employment elsewhere with the assistance of the U. S. and state employment services.

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S. M. S. Medical College

DEATHS

Albus, William Reuben ⊕ Chicago; born in Catawissa, Pa., Dec. 5, 1893; Rush Medical College, Chicago, 1933; interned at the Presbyterian Hospital; surveyor for the joint commission on accreditation of hospitals attached to the American Hospital Association; formerly a member of the professional field staff of the Council on Medical Education and Hospitals of the American Medical Association; served in the medical reserve corps of the U. S. Army from 1934 to 1947, retiring with the rank of colonel; was a bacteriologist interested in the Lactobacillus acidophilus action in milk, for which he was elected a member of the Cosmos Club; died Sept. 10, aged 61, of cerebral vascular accident.

Auld, Frank Parkinson, Shelbyville, Ill.; Barnes Medical College, St. Louis, 1903; at one time district health superintendent of the state department of health; died July 16, aged 79.

Berner, Frank ⊕ New York City; Universität Basel Medizinische Fakultät, Switzerland, 1924; also a graduate in pharmacy; member of the American Psychoanalytic Association, American Psychosomatic Society, American Psychiatric Association, and the American Orthopsychiatric Association; for many years on the faculty of Columbia University College of Physicians and Surgeons; associated with the Neurological Institute; died in the Lenox Hill Hospital Aug. 4, aged 60, of multiple myeloma.

Bopp, Henry William ⊕ Terre Haute, Ind.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; member of the American Society of Plastic and Reconstructive Surgery; past-president of the Vigo County Medical Society; for six years deputy coroner; chairman emeritus of the executive committee of the Union Hospital; died July 27, aged 74, of cerebral vascular accident, bronchiectasis, and chronic pulmonary fibrosis.

Butt, Miriam M. ⊕ Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1894; an associate member of the American Medical Association; fellow of the American Academy of Ophthalmology and Otolaryngology; on the staff of the Woman's Hospital; died May 19, aged 82, of cerebral thrombosis and arteriosclerosis.

Clark, John Hubert, Knoxville, Tenn.; Meharry Medical College, Nashville, 1940; interned at the George W. Hubbard Hospital of Meharry Medical College, Nashville, where he served a residency; member of the city planning commission; on the staff of the Knoxville General Hospital; died July 27, aged 40, of acute myocardial infarction.

Coffee, Henry Daniel ⊕ Columbia, S. C.; Atlanta School of Medicine, Ga., 1909; served during World War I; for many years associated with the Veterans Administration; died in the Veterans Administration Hospital July 18, aged 68, of ruptured aortic aneurysm.

David, James Carleton ⊕ San Jose, Calif.; Northwestern University Medical School, Chicago, 1950; interned at the Highland-Alameda County Hospital in Oakland, where he served a residency; died May 21, aged 44.

Evans, Morris, San Francisco; Cooper Medical College, San Francisco, 1903; died in Millbrae, Calif., Aug. 14, aged 81.

Garnier, Anna M., New York City; Woman's Medical College of the New York Infirmary for Women and Children, New York City, 1893; for many years physician and surgeon for the American Manufacturing Company at its Greenpoint plant in Brooklyn; died Aug. 9, aged 85.

Goodloe, Aareiel Ellis, Chattanooga, Tenn.; University of the South Medical Department, Sewanee, 1909; served during World War I; died Aug. 2, aged 69.

Havel, Harold William, Ingleside, Neb.; Creighton University School of Medicine, Omaha, 1933; died July 17, aged 45.

Isaacs, George W., Faucett, Mo.; St. Louis College of Physicians and Surgeons, 1893; died in the Missouri Methodist Hospital, St. Joseph, June 11, aged 84, of arteriosclerosis.

Johnson, Frank Bruce ⊕ Lincoln, Neb.; Keokuk (Iowa) Medical College, 1894; died in Kearney July 23, aged 90.

Johnson, Hubert Hatch ⊕ Royal Oak, Mich.; Detroit College of Medicine, 1905; also a graduate in pharmacy; at one time health officer of Ypsilanti, Mich.; served on the staff of the Highland Park (Mich.) General Hospital; died in Wy-Curt Hospital Aug. 3, aged 83, of acute pyelonephritis.

Kacso, Ladislaus ⊕ Westlake, Ohio; Magyar Királyi Pázmány Petrus Tudomanyegyetem Orvosi Fakultasa, Budapest, Hungary, 1920; died June 7, aged 63.

Ladas, Harilaos Elia ⊕ Mobile, Ala.; National University of Athens School of Medicine, Greece, 1915; on the attending staff, Mobile Infirmary and Providence Hospital; died July 3, aged 65, of chronic glomerulonephritis.

Leviton, Nathan David, Chicago; Northwestern University Medical School, Chicago, 1911; died Aug. 16, aged 70.

Lowry, Henry Lawrence ⊕ Tindall, Mo.; Barnes Medical College, St. Louis, 1904; died in Trenton May 5, aged 86, of arteriosclerosis.

Maercklein, Ivan Rudolph, Minot, N. D.; Milwaukee Medical College, 1903; died in the Veterans Administration Hospital in Long Beach, Calif., April 27, aged 74, of cancer.

Owsley, Robert Wright ⊕ San Marino, Calif.; Indiana University School of Medicine, Indianapolis, 1934; member of the American Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Otolaryngology; served during World War II; past-president of the Arcadia Community Chest and Lions Club of Arcadia; on the staff of the St. Luke Hospital in Pasadena; died in Stanford-Lane Hospital, San Francisco, Aug. 15, aged 43, of coronary occlusion.

Place, Philip Wilfred, South Lincoln, Mass.; Tufts College Medical School, Boston, 1909; served in France during World War I; for many years physician with the Grenfell Mission in Labrador; died in the Emerson Hospital in Concord July 30, aged 72.

Reagan, Charles Harold, Grundy, Va.; Northwestern University Medical School, Chicago, 1930; died July 3, aged 55, of acute coronary occlusion.

Reedy, Walter Marion, Dunmore, Pa.; Jefferson Medical College of Philadelphia, 1892; served on the staffs of the State and Mercy hospitals in Scranton; died June 8, aged 85, of carcinoma of the prostate.

Sanders, Samuel Robert ⊕ Moulton, Ala.; Birmingham Medical College, 1908; died June 17, aged 83, of cerebral hemorrhage.

Tate, Wendell Maurice ⊕ Peabody, Kan.; University of Kansas School of Medicine, Kansas City, 1933; member of the American Academy of General Practice; interned at the Halstead (Kan.) Hospital; on the staff of the Axtell Christian Hospital in Newton, where he died July 12, aged 49, of coronary occlusion.

Trader, Charles Bell ⊕ Sedalia, Mo.; Kansas City (Mo.) Medical College, 1901; died in the Bothwell Hospital July 21, aged 85, of heart block and nephritis.

Vandeman, Adelbert N., Spring Valley, Ohio; Starling-Ohio Medical College, Columbus, 1909; served during World War I; member of the Ohio State Medical Association; died Aug. 5, aged 76, of complications due to burns.

Williams, Louis A., Denver; University of Colorado School of Medicine, Denver, 1912; died in St. Anthony's Hospital July 24, aged 66, of cerebral vascular accident.

Wynkoop, James Cartright ⊕ Washington, D. C.; University of Maryland School of Medicine, Baltimore, 1892; died Aug. 3, aged 87.

⊕ Indicates Member of the American Medical Association.

FOREIGN LETTERS

AUSTRIA

Colectomy for Constipation.—At the meeting of the Society of Physicians in Vienna on June 24, Dr. R. Oppolzer reported on a woman, aged 30, who underwent appendectomy in 1942. Eight years later she began to complain of retention of feces of 14 days' duration, skin rash, folliculitis, and headache. Despite the use of laxatives and enemas, her bowels moved only once every 8 to 10 days. In 1951 she went for 16 days without a bowel movement despite enemas and laxatives. In 1952 she was admitted to the polyclinic where a hemicolectomy on the left side, including the left flexure and an anastomosis between the transverse colon and the sigmoid, was performed. Clinical improvement was noted, but bowel movements occurred only every second or third day and after laxatives. The condition of the patient remained bearable for two years; then she had severe headache and constipation increased again. In 1954 she had a retention of feces for 18 days despite repeated enemas, administration of neostigmine, paravertebral block, administration of acetylcholine, carbachol (Doryl), and posterior pituitary injection. On x-ray examination, the barium's position in the transverse colon remained unchanged for several days, although the anastomosis was free and wide.

Cure of constipation resulted from total colectomy with anastomosis between the ileum and the pelvic rectum, which was performed in September, 1954. Following operation the patient had daily bowel movements, but her headache continued for about four weeks, although an objective cause for it could not be discovered. Only phenolization of the carotid arteries on both sides by injections of 5% isophenol solution caused the prompt disappearance of the headache. The patient had been completely free from complaints for nine months when last seen. The microscopic examination of the colon revealed proliferation of the myenteric plexus. No narrowed portions and no changes in the submucosal plexus were observed.

At the same meeting, H. Finsterer said surgical treatment is indicated to relieve constipation only after internal treatment has failed. The type of surgical treatment depends on the cause of the constipation. In patients with megacolon or spasm of the descending colon and sigmoid, left-sided hemicolectomy with side-to-end anastomosis between the mobilized descending colon and rectum may be sufficient. Total removal of the pelvic colon may be necessary to prevent recurrence of the constipation, which was cured permanently in one patient only after resection of the spastically contracted colon. Total colectomy is preferably performed in two stages (first a left hemicolectomy, and, if constipation continues, extirpation of the right colon with ileorectostomy). Of the patients operated on recently, one patient is completely free from complaints and has normal bowel movements, but another complains of diarrhea. Constipation may cause the same symptoms as a gastric ulcer, and the apparent gastric disturbance may disappear permanently only after colectomy.

A woman, aged 56, who had been suffering from constipation since her childhood and who recently complained of stomach pains was admitted for an operation on her stomach. The speaker recommended colectomy, but the patient asked for gastrectomy because her husband, who had had a gastrectomy for an ulcer, had made a complete recovery and no longer was constipated. In December, 1924, the patient had a gastrectomy (Billroth 1). The postoperative course was satisfactory at first but, because of shrinking of the anastomosis, stenotic vomiting occurred. A second operation was performed on April 27, 1925 (posterior gastroenterostomy and cholecystectomy). After this operation the patient no longer vomited but the pain persisted. She was then treated by internists for a peptic jejunal ulcer. This treatment was ineffective, and she requested another operation on the stomach and threatened to commit suicide. She was operated on for the third time on Oct. 26, 1925. No ulcer was found in the stomach, but duplication of the colon on the splenic flexure and spasm of the descending colon and of the sigmoid were observed. Consequently, hemicolectomy was performed on the left side and the stomach was not disturbed. The patient made a complete recovery. She was seen in January, 1939, at which time she had no complaints, had normal bowel movements daily, and had gained 55 lb. (24.9 kg.). This patient could have been spared the operation on the stomach if she had submitted at once to the colectomy.

Wolff-Parkinson-White Syndrome.—At the same meeting, Dr. H. Dittrich reported on a man, aged 52 years, who was admitted to the medical department of the Hanusch Hospital for homologous serum hepatitis. In the course of the routine examinations an electrocardiogram was taken that showed the pattern of the Wolff-Parkinson-White syndrome. Repeated electrocardiograms made alternately with two different types of apparatus (one with direct recording and the other with photographic recording) showed that the altering of the electrocardiographic tracings could be reproduced only by the direct recorder. The cause of this surprising observation was that the patient had to walk to this apparatus, while the recordings with the other type of apparatus were made with the patient in bed.

DENMARK

Changes in the Causes of Death.—Frandsen and Hamtoft in *Ugeskrift for læger* for July 28, 1955, present tables that bring out some curious facts concerning the causes of death and disease from year to year. Between 1921 and 1954 deaths from suicide, cancer, heart disease, and vascular diseases of the central nervous system have grown enormously in number, while deaths from tuberculosis and other infectious diseases have become comparatively rare. Of every 100 deaths in 1954, 7 were violent, as compared with only 3 in 1921. Between these two years deaths from cancer have risen from 12 to 21 per 100; deaths from heart disease from 10 to 27; and deaths from vascular diseases of the central nervous system from 5 to 13. Only 1% of all the deaths in 1954 could be traced to tuberculosis, whereas 9% were due to this cause in 1921. Under the age of 25, from one-half to one-third of all the violent deaths in 1954 were due to traffic accidents, but, between the ages of 25 and 65, suicides among men constituted about half of all the violent deaths. For women of this age, the preponderance of suicide as a cause of violent death was even more marked. Between 1945 and 1953 there was a sharp rise in the number of patients treated in hospitals for digestive, circulatory, and gynecologic diseases. Diseases of the nervous system, tumors, and trauma also showed a marked rise. On the other hand, the number of patients with skin and infectious disease, including venereal disease, fell from 175 per 1,000 in 1945 to 70 per 1,000 in 1953. The average number of days spent in hospital by patients with medical ailments in 1953 was 22 days per patient, compared with only 15 for patients with surgical diseases. This average was 73 days for patients suffering from tuberculosis.

Acetazoleamide for Cardiac Edema.—Dr. Ib. Persson has treated 26 patients between the ages of 29 and 88 suffering from cardiac edema associated with arteriosclerosis. In addition to rest in bed, digitalis, and a salt-poor diet, they were given acetazoleamide and some mercurial diuretic alternately. Two tablets (each 250 mg.) of acetazoleamide were given three times a day, and in a few cases three such tablets were given three times a day over a short period. No serious ill-effects apart from slight lassitude in a few patients followed the administration of the new drug, but its action as a diuretic appeared to be somewhat weaker than that of a mercurial diuretic. Because mercurial diuretics may be poorly tolerated by some patients, acetazoleamide may prove a useful alternative. There are also some patients in whom a mercurial diuretic fails to eliminate the edema,

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The items in these letters are contributed by regular correspondents in the various foreign countries.

and in such patients alternate treatment with these two diuretics may be effective. Furthermore acetazoleamide may be given orally, hence the patient may take it at home (*Nordisk medicin* for May 12, 1955).

Poliomyelitis Vaccination.—Effective July 1, 1955, poliomyelitis vaccination was limited to children of school and preschool age. The vaccine is issued by the State Serum Institute in Copenhagen, and vaccination could be undertaken by any fully qualified physician. For this the physician is paid by the state four Danish crowns for each of the three injections given. There is no cost to the person vaccinated. The vaccinating physician is required to fill in a special form to serve as a certificate of vaccination, and, because the amount of vaccine available is limited, vaccinators are requested to send in their reports as promptly as possible. The vaccine is given intracutaneously. If the vaccine is given subcutaneously by mistake it will do no harm but is likely to do little good. The interval between the first and second injection is four weeks and between the second and third injection about 12 months. Each intracutaneous injection on the forearm should give rise to a well-defined, circular, anemic papule, with a diameter of 7 to 9 mm. In permitting any fully qualified physician to administer poliomyelitis vaccine, the Danish public health authorities have once again affirmed their policy of giving the general practitioner as much responsibility as possible with regard to public health measures.

Training of Specialists.—The Danish physician who wishes to qualify as a specialist attaches himself to certain hospitals of high standing and serves them for a prescribed period. He is not required to pass a formal examination. In 1920 only 15% of the medical profession in Denmark were recognized specialists, but by 1954 the percentage was 30. In recent years there has been a splitting up of the specialties for, while in 1930 there were only 15 different subjects in which a physician could specialize, this number had risen to 21 in 1954. Dr. Mogens Fog in *Ugeskrift for læger* discusses the pros and cons of the current system. He pays tribute to the high standards of his compatriots but warns against the loopholes for slipshod work by would-be specialists, some of whom suffer from a lack of systematic organization of their studies. At present the prospective specialist can master the technical side of his work without acquiring the perspective conferred by a scientific and biological approach. For want of such a background he may not be fully qualified to follow the evolution of his specialty. Without imposing formal examinations, as is the practice in the United States, the situation may be improved by providing lectures and organizing small study groups to review recent advances in the basic sciences.

Danish Cancer Register.—The *Danish Medical Bulletin* for July, 1955, has an account of the work of the Danish Cancer Register by its chief Johannes Clemmesen, who explains how closely his net is woven for catching every case of cancer. When the Register was opened in 1942, its principal tasks were defined as the provision of (1) reliable morbidity statistics with a view to the accurate estimate of therapeutic results, (2) an accurate estimate of differences in incidence of cancerous diseases at various times and in various areas, occupations, and other categories, and (3) statistics on individual patients for the use of physicians as well as for the study of multiple cancers and coincidence with other diseases. Cancer not being a reportable disease in Denmark, the aid of hospital services and individual physicians was sought to discover every case. The hospitals agreed to report patients with malignant disease to the Register at a token fee of 1 Danish crown for each case. In 1943 these reports cost about 9,000 of the total of 32,000 crowns spent by the Register in this year. In 1953 the cost of these reports had risen to 18,000 and the total cost to 95,000 crowns. The clerical staff originally numbered only two, but by January, 1955, it had expanded to one part-time and five full-time members. The filing card system in use during the early life of the Register has now been replaced by the full use of a mechanical tabulation system. Clemmesen insists that it would be fatal to consider cancer registers as merely institutes for the collection of statistical material. He believes that cancer registers will fail to fulfill their tasks if they are not put into a position to supplement the regional mapping out of cases of cancer by the collection of additional information related to particular problems. In recent years cancer registers have been developed in a number of countries following different systems, but the issue of success or failure may not in some cases lie entirely within themselves. In many cases their sponsors have sought their justification in the procurement of therapeutic statistics, hoping that endemiological studies could thrive alongside the former. It is, however, feared that therapeutic statistics with their careful studies of relatively small differences in percentage of cures may outgrow the germs of endemiological research and not least in places where the leadership is not in the hands of medical men familiar with the problems of malignant diseases.

Blood Transfusion Problems.—The donors of the blood bank of the Bispebjerg Hospital in Copenhagen are largely recruited from Copenhagen, and they consist chiefly of persons paying their debt of blood for relatives benefiting from blood transfusion in this hospital. Kryger and Schaebel in *Ugeskrift fo læger* for July 21, 1955, tabulate the 498 mishaps observed i the course of about 25,000 transfusions. Although none of th mishaps were fatal, several were alarming. Three cases of sever hemolytic reaction reflected mistakes in technique that migh have been avoided. A comparatively mild hemolytic reactio may be indicated by shivering and a rise of temperature. Thi may be the only clinical sign of such a reaction, but it shoul be taken as a warning of more trouble on the resumption o a transfusion. Among the 107 patients with an allergic reactio such as urticaria (96 cases) or asthma, 3 had severe shock tha might well have proved fatal had not epinephrine been give intravenously. A febrile reaction was recorded in 284 patient and diverse other reactions, such as pain in the loins, in 10 cases. Citrate reactions and speed reactions are not include in this study as the blood bank was not examined in respect t them. A comparison of the findings of this study with thos of earlier studies published abroad shows that the frequenc of hemolytic reactions is lower in Denmark than elsewher This difference may indicate that the population of Denma has received less artificial immunization than that of other cou tries. If so, there may in the near future be a rise in the fr quency of blood transfusion complications due to the increa in immunization of the population.

National Diabetes Association.—In a report for 1954, t National Diabetes Association referred to the opening of t Skaerven summer colony for diabetic children as the outstan ing event of 1954; 118 such children were given a three wee outing in 1954. The association also runs the only convalesce home for diabetics in Denmark, with 24 beds available the ye around. Another center in Copenhagen provides a home f diabetic children between the ages of 2 and 14 whose ow homes cannot give them the special care necessary for diabetic

International Congress of Surgery.—For the first time in i history, the International Congress of Surgery was held in Scandanavian country. More than 1,000 surgeons from 4 different countries, including Russia, met in Copenhagen i July. *Nordisk medicin* for July 21, 1955, celebrated the oc casion with a series of articles in English on surgery in Denmark Finland, Norway, and Sweden.

ENGLAND

Effects of Anesthesia on the Brain.—The brain is extremel vulnerable to short periods of vascular insufficiency or anoxia Dr. P. D. Bedford has investigated the mental condition of 25 persons over the age of 65 after operations performed unde general anesthesia (*Lancet* 2:259, 1955). In 120, or 48%, ther was some evidence of mental impairment, and 29 of these, o 12% of the total, were suffering from severe dementia that wa not present before and that would not normally have been associated with the operation. Eighteen of the patients showed extreme dementia. Typically, anesthesia comprised preoperative medication with 20 mg. of Pantopon, or 10 to 15 mg. of morphine, and 0.4 mg. of hyoscine, or 0.65 mg. of atropine, followed by induction with thiopental used intravenously, and continuation with nitrous oxide and oxygen, or ether and oxygen, or trichloroethylene and oxygen. For abdominal operations a muscle relaxant was often given. Histological examination of the brains of those who died was not very helpful, as it was difficult to distinguish the degenerative changes of old age from those of anoxia.

Dr. Bedford does not directly incriminate the anesthetic agents and drugs used as the cause of these catastrophes, because not all the older people were affected. There must be an individual susceptibility to one or more of the factors concerned in operation with the patient under general anesthesia that determines the occurrence of brain damage. This susceptibility is unpredictable and fortunately rare. Operations on older people should only be performed when absolutely necessary. Premedication and postoperative medication should not be given routinely. Narcotics and potent analgesics are known to affect the central nervous system and should be given only when indicated. Less potent drugs should be used whenever possible. Blood pressure, hemoglobin, and oxygenation should be kept at optimum levels in operations, and "hypotensive surgery" should be absolutely forbidden in the elderly. Dr. Bedford makes a plea for the careful anticipation, prevention, and treatment of the complications of operations performed with the patient under general anesthesia, such as dehydration, mineral depletion, vitamin deficiency, pneumonia, postoperative toxemia, and fever. When postoperative confusion occurs in older people, its cause and the reason for its precipitation should be sought.

Dr. Bourne of St. Thomas' Hospital has also pointed out that nitrous oxide anesthesia can cause grave effects in the young as well as the old (*Lancet* **2**:295, 1955). Between 4,000 and 5,000 dentists in the United Kingdom have known patients of all ages, including young children, to remain in coma after the administration of nitrous oxide. He has followed up 70 such patients, and 2 of these suffered cerebral damage after receiving nitrous oxide for dental extraction.

Health in the Services.—A report on the health of the Army (Report on the Health of the Army, W. O. Code No. 11055, 1954) indicates that medical discharges in the Army for psychiatric disorders were 4.1 men per 1,000 strength; in the women's services the figure was 15 per 1,000. Discharges for all other diseases were 9.1 men per 1,000, and in this group tuberculosis was highest with 1.2 per 1,000 followed by peptic ulcer with 1.1 per 1,000. Discharges of Army recruits during processing show a similar pattern. Total discharges were 8.75 per 1,000 intake, nearly one-half of which were for psychiatric disorders. There was a high incidence of appendicitis and peptic ulcer, both of which have been increasing. The incidence of appendicitis among women in the Army was three times as great as among men, although peptic ulcer was less common among the women. Sickness rate in the Army, as measured by admissions to hospital and other medical units, was 274 per 1,000 over a period of two years. The principal causes of admission were tonsillitis, pharyngitis, and skin conditions. The common cold was low on the list. In the British Army in Germany skin conditions were the commonest cause of admission. Venereal diseases accounted for 5.5. per 1,000 strength among the hospital admissions in the United Kingdom,15.3 in the British Army on the Rhine, and 13.4 in the Middle East. The highest incidence occurred in the Korean war zone.

The Air Force findings (Report on the Health of the Royal Air Force, By Command of the Air Council, A. P. 3319/51) were slightly different. Discharge for psychiatric reasons was highest, as in the Army, but was 21% of the total. Next came diseases of the ear and mastoid (21%) and then all forms of tuberculosis (11.6%). In the Women's Royal Air Force 43% of total disability discharges were for psychiatric reasons. The incidence of tuberculosis was similar to that for men (12%). Among the men 703 contracted scarlet fever and 839 streptococcic sore throat. Most of these were returned to duty. The incidence of poliomyelitis declined in the R. A. F. but not in the Army and that of chicken pox and measles went up. There was a striking increase in scarlet fever from 0.71 to 2.76 per 1,000 strength and in rubella from 1.91 to 3.70. The incidence of diphtheria was low everywhere, and that of typhoid was negligible except in the Middle East. Before the war the disability discharge rate was 5.6 per 1,000 in the Air Force, but then all personnel were volunteers. The National Service Act has changed the health and age pattern of the forces. The average number of days' sickness has improved compared with prewar records, and the death rate (2.2 per 1,000) is just over half what it was before the war.

Health Center for Old People.—Three years ago the public health department of Rutherglen, a suburb of Glasgow, started a welfare service for old people to maintain them in a sound state of physical, mental, and social well-being. To do this it was necessary to provide clinical facilities for assessment at the premises of the local authority, cooperate with the statutory and voluntary services for old people, extend the health visitor's work, and set up a chiropody service. The aim of the center was to promote health rather than cure disease, compile a register of old people, search for early cases of disease, integrate treatment with social environment, and conduct research into the aging process. A health officer sees new patients, interviews any old patient returning for guidance, and carries out general clinical and medicosocial assessments. He arranges for radiological examinations and discusses each patient's problems over a cup of tea. A consultant physician holds a weekly clinic, examines in detail the patients sent by the health officer, and arranges for the necessary diagnostic or laboratory tests. Close contact is maintained between the center and the patient's general practitioner. Visiting nurses attend the clinic to learn of the problems of old age, and voluntary workers teach the old people occupational therapy. Physiotherapists and a chiropodist employed by the local authority attend the clinic. When further investigation is thought necessary, the patient is admitted to a hospital, certain wards of which are devoted to the care and treatment of the old. In two years 500 ambulant old people attended the clinic; 352 of these suffered from some disability. Pain, weakness, dyspnea on exertion, and giddiness were common complaints and were experienced by 89% of the patients. The systolic pressure was over 170 mm. Hg in 313 patients, and in 85 the hypertension was asymptomatic. The hemoglobin level was 80% or more in 395 of the patients, and in only 9 was it less than 60%. Medical and surgical treatment was given where necessary. The mental health was also investigated. About 125 were unhappy, and attempts were made to improve their morale by various means. Physiotherapy and the occupational therapist contributed much to this improvement. Unhappiness was commonest in those who lived alone; indeed, many were virtually socially isolated. It is pointed out that if child welfare clinics are still necessary, then the need for health centers for old people is even more necessary, because their age group has been left behind in the general advance of the public health services.

Congress of Obstetrics and Gynecology.—At the 14th British Congress of Obstetrics and Gynecology, held at Oxford in July, Dr. A. Walker of London said that in Britain about 60% of confinements for childbirth were in hospitals and that 80% in and out of hospitals were managed by midwives. Less than 10% of general practitioners who practice obstetrics care for as many as 20 cases a year. Over half undertake antenatal care only and rarely see a baby born, and, of those on call for the delivery of a baby, only about 20% attend the confinement. Conditions are different in rural areas. A smaller body of physicians practicing obstetrics as specialists is needed, handling enough cases to retain their interest and skill. These specially trained physicians could hold permanent part-time hospital posts under the supervision of consultants. Dr. Walker considered that midwives should have status and responsibility—particularly as 80% of babies are delivered by midwives in Britain—and that they should be the ones to manage normal labor. He thought the present system in Britain was sound and that it would be a waste of medical manpower to replace the midwife. There are already too many practitioners competing for too little obstetric work.

Dr. G. F. Abercrombie of London, speaking as a family practitioner who had delivered 768 babies, favored hospital delivery for the primagravida because of the high rate of operative procedures needed in delivery. The general practitioner-obstetrician should be competent in external version, breech delivery, surgical induction of labor, manual rotation of the head, forceps extraction, manual removal of the placenta, and the repair of lacerations. Even so, some 5% of women in labor need attention that can only be given in a hospital, such as a cesarean section or blood transfusion. The physician should give the patient an understanding of the physiology of pregnancy and labor before the event. Most multigravidas can be delivered at home, but every primagravida undergoes what is in effect a trial labor. She should therefore be delivered in a hospital with all facilities provided, after which she could return home early so that the specialist-practitioner could care for her. The speaker deplored the fact that in London general practitioners did not have access to hospital obstetric units. Prof. A. M. Claye of Leeds said that domiciliary obstetrics should be a thing of the past. All patients should be hospitalized, as it is impossible to forecast a normal delivery.

Admission of Preschool Children to Hospitals.—A joint committee of the Institute of Child Health, the Society of Medical Officers of Health, and the Population Investigation Committee, has been investigating the admission of preschool children to hospitals. Their report states that the annual admission rate of children from one month up to 5 years of age is 53 per 1,000. Nearly half remained in the hospital for one week or less, and a third stayed longer than a fortnight. The main causes of admission in the first year of life were congenital malformations, digestive diseases, and respiratory infections. By the age of 2 years tonsillectomy accounted for a quarter of the admissions and bacterial infections for 10%. More boys than girls were admitted at all ages, mainly on account of congenital malformations, digestive diseases, circumcision, and accidents. Children from homes in the lower income group had a higher rate of admission for infections than did those from homes of the professional classes and white-collar workers. There were no marked social differences in other disorders, except for a small group of unskilled manual workers' children who had a high rate of admission for all causes, except tonsillectomy. The greater incidence of infections among manual workers' children was attributed to the prevalence of large families and overcrowding in such social groups and the consequent greater risk of infection. One third of all the children were admitted to wards or hospitals that allowed no visiting, not even by parents. This ruling is now relaxed in most, if not all, hospitals. In 1953 the Central Health Services Council advocated the daily visiting of children in hospitals by their parents, and the Ministry of Health sent out a directive urging this, provided there were adequate safeguards against the spread of infection. Apparently, Scottish hospitals have always been more lenient in allowing visitors to children's wards. Correspondence in the national press reveals that there is still much public uneasiness over the attitude of some hospitals that do not permit the frequent visiting of children by their parents. The Hospital for Sick Children, Great Ormond Street, one of the best known children's hospitals in the country, strongly favors the visiting of sick children by their mothers between 5 and 6 p. m., so that they can help the nursing staff at the children's bedtime.

Death of Lord Horder.—Lord Thomas Jeeves Horder, physician to five English monarchs, died on Aug. 13 of a heart attack. He was born in Shaftesbury in 1871. His scientific and medical education was received at the University of London and St. Bartholomew's (Bart's) Hospital. He supplemented his formal studies in biology by a correspondence course in which his papers were marked by H. G. Wells. After obtaining his M.D. degree he soon established himself on Harley Street and was appointed to the visiting staff of Bart's Hospital, where he became the senior consultant. Early in his career he was called in to attend King Edward VII, and this began his connection with the English royal family. The Duke of Windsor, when he was Edward VIII, made Lord Horder his physician, and he was the extra physician to King George V, George VI, and to the Queen. He was knighted in 1918, made a baronet in 1923, and raised to the peerage in 1933. He was made a Knight Commander of the Victorian Order and eventually a Grand Commander. He was one of the last of a generation of clinicians reared in the school of experience without laboratory or diagnostic aids. His reputation was based on his brilliance as a diagnostician and on his understanding of patients, who included politicians, prize fighters, and Barbara Hutton. He was chairman of the Cremation Society, Anti-Noise League, Empire Rheumatism Council, and British Empire Cancer Campaign. During World War II he was a consulting physician to the War Office, Ministry of Food, and Ministry of Pensions. Lord Horder was a determined opponent of the National Health Service, as originally outlined by Mr. Aneurin Bevan and the socialist government. Throughout the protracted negotiations between the Ministry of Health and the medical profession he succeeded in obtaining numerous concessions. As chairman of the Fellowship for Freedom in Medicine he carried on the battle against the politicians and spoke and wrote right up to the end against the National Health Service, which he maintained lowered the professional standards of medicine.

Health Services in Scotland.—The health services in Scotland and the care of the aged sick were debated in the House of Commons on July 19. Mr. Willis, a member for Edinburgh, said that of 5,000 old people examined, 40% were in need of care and attention. If this number represents a true cross section of the population, about 200,000 old persons are in need of nursing care, hospital treatment, therapy, or rehabilitation. Of the 990 in the survey living alone, 537 or 10% of the total are bedridden or unable to fend for themselves. Mr. Thomas Oswald, another Edinburgh member, said that 25% of the old people in this survey were in need of medical attention, and this need was not being met. A further 25% require home or domestic help, and 10% needed physiotherapy, which they are not receiving. About 12% need institutional care, and, for this, 152 are on waiting lists. In reply the Secretary of State for Scotland said that more beds were being set aside for the aged and that special units were being set up in Dundee and Glasgow. A special training school for nurses is to be opened in Glasgow. Visiting nurses, too, are being called on to give advice to the elderly sick, and practically all local authorities are providing a service of domestic helps. The hospital building program is being put into effect. It was noted that the death rate from tuberculosis had fallen from 23 per 100,000 in 1953 to 20 last year. Even so, over 7,000 cases were reported in 1954. The average stay in hospital has been reduced, largely due to the use of new chemotherapeutic drugs, and more patients are now cared for without entering the hospital. For the whole of Scotland there are still just under 500 patients with tuberculosis waiting for admission to a hospital. When compared with the figure of 9,000 admissions annually, this does not seem large.

Energy Requirements of Miners and Sedentary Workers.—A continuous record was made of the nature and duration of every activity, both at work and at home, of 19 miners and 10 clerks at Buckhaven, Scotland (Special Report Series, Medical Research Council, No. 289, London, Her Majesty's Stationery Office, 1955). This was done by noting their food intake and oxygen consumption, as measured by the Kofranyi-Michaelis respirometer, an instrument devised by workers at the Max Planck Institut fur Arbeitsphysiologie at Dortmund, Germany. The miners expended an average of 3,660 calories a day and the clerks 2,800. The difference was due to the energy expended at work (1,750 and 890 calories a day respectively). The two groups used the same number of calories on their spare-time activities. The proportions of calories derived from protein, fat, and carbohydrate were about the same in the two groups. The miners did not get their extra calories from carbohydrates alone. Contrary to what was expected, the miners spent 38% of their working time sitting about. The metabolic cost of the various mining activities was 7 calories per minute, but the mean rate of energy expenditure during the entire time spent on the underground shift was only 4.3 calories per minute. None of the miners had energetic recreations. Taking the week as a whole both at work and at home, the miners spent two-thirds of their total time and more than one-third of their total energy lying down or sitting up. A similar finding is reported for Army cadets by McCance and Widdowson of Cambridge. Alleged to be spending lives of tremendous activity, they spent nine and one-half hours a day sitting and eight and one-half hours in bed.

Wrong Hospital.—The *Lancet* of July 30 describes the case of a small boy who suffered an injury to his eye and was sent away from the eye hospital to which he was taken because it was an extraocular injury, from the accident hospital because there was no fracture, and from the infirmary because he was a child. He was then taken to the children's hospital, from which he was sent to the plastic surgery unit at the regional hospital. This extreme specialism of hospitals, whereby the patient in urgent need of attention is given the run-around, is deplored. The lay press has also reported many instances of the ill being sent from one hospital receiving room to another before being admitted. When such a patient dies soon after admission, even though this outcome is not connected with the transfer from one hospital to another, the two are often connected in the public mind. The *Lancet* contrasts the case of the boy with that of an elderly man far from home on a motor tour who was suddenly afflicted with acute urinary retention. Rather than be admitted to a strange hospital he traveled home in easy stages and stopped to obtain relief whenever he saw a hospital. He progressed from catheter to catheter until he reached his home town and the physician of his choice. During his journey he stopped at cottage hospitals, city infirmaries, a maternity hospital, and a mental hospital. At all, his distress was relieved. The *Lancet* comments that at all these hospitals the physicians, surgeons, general practitioners, obstetricians, and psychiatrists were all doctors first and specialists second and were not so highly specialized that they had forgotten how to pass a catheter.

Structure of Vitamin B_{12} Elucidated.—At the annual meeting of the Chemical Society at Exeter in July, Sir Alexander Todd of Cambridge University announced that the structure of vitamin B_{12} had been elucidated as a result of collaborative work with the Glaxo Laboratories at Greenford in Middlesex, Dr. D. M. Hodgkin of Oxford, and workers at the University of California. Further alkaline hydrolysis of cobalt-containing acid hydrolysis products by the Cambridge workers resulted in the isolation of a hexacarboxylic acid. Dr. Hodgkin described the results of x-ray crystallographic analysis of this at the third International Congress of Biochemistry at Brussels in August. Coupling this with the observation that acid hydrolysis of vitamin B_{12} yielded the phosphate of 5:6 dimethylbenziminazole ribofuranoside, Sir Alexander Todd considers that the vitamin is the nucleotide of a complex containing four pyrrole rings, the nitrogen atoms of which are coordinated with a cobalt atom. He acknowledges the parallel research going on in the Merck Laboratories in New Jersey. Their workers have isolated degradation products, which permitted the inclusion of several more atoms in the four pyrrole-ring structure. They have been submitted to x-ray crystallographic analysis by Dr. Hodgkin. Experiments on the synthesis of vitamin B_{21} have been started at Cambridge. A synthesis would be of academic interest only, as it could not compete with the present method of manufacture by which vitamin B_{12} is made as a by-product in the manufacture of streptomycin.

Separation of Children from Their Parents.—In recent years much interest has been focused on the connection between the separation of child and parents and the subsequent development of delinquency and emotional disturbances in the child. An investigation was carried out by Howells and Layng to test the validity of this association (*Lancet* 2:285, 1955). Two groups of children were examined—a random group of disturbed children who were attending a child psychiatric clinic, and a control group of mentally healthy school children. The parent was asked for details on each occasion that separation between child and parent had occurred before the child's fifth birthday. Sex distribution, average age, the pattern of separation experiences, and the low incidence of separation were about the same in the two groups. The observations did not bear out the generally accepted view that the early separation of child from its parents is responsible for later psychiatric disturbances. The findings supported the impression that mental ill health in children springs from processes arising from being with their parents rather than from being away from them. Children enduring adverse home environments may actually gain from separation from their parents. Although separation may cause suffering for the child, it does not, in most cases, lead to mental ill health. Some children enjoyed and benefited from separation. When separation from the mother is inevitable, emotional trauma can be reduced by using friends or relatives as mother substitutes.

Genetic Damage from Irradiation.—There is great alarm that nuclear explosions may produce undesirable genetic changes in man. The possible genetic dangers of the therapeutic and diagnostic use of roentgen rays have, however, been largely overlooked. For example, it has been stated that the irradiation of the ovaries for the treatment of amenorrhea may cause induced mutations affecting future generations. Stanford and Vance investigated the dose of roentgen rays received by the gonads from various diagnostic procedures (*Brit. J. Radiol.* 28:266, 1955). The dose varied from 0.026 milliroentgens for radiographic examination of the forearm to 800 milliroentgens for lateral radiography of the lumbosacral joint. In men, for similar procedures, the dose received by the testes varied from 0.13 to 1,100 milliroentgens per exposure. The average gonadal dose per exposure is of the order of 35 milliroentgens for men and 65 milliroentgens for women. An estimate of the possible genetic effects can be calculated from these figures. If it is assumed that the background radiation over a generation is about 3 r, then an average of one diagnostic roentgenogram per person per generation would increase the mutation rate due to radiation—and the tendency to genetically determined deaths from this in later generations—by about 0.01 in men and 0.02 in women. These calculations are based on the assumption that the field area is reduced to a minimum when taking roentgenograms.

Unusual Epidemic.—An unusual epidemic in Carlisle, Cumberland, is described by Dr. Wallis in *Lancet* (2:290, 1955). Sporadic cases were first noted early this year, and a few are still appearing. The main features are conjunctivitis, which may be unilateral, fever up to 104 F, malaise, sore throat, dry cough, and enlarged cervical lymph glands. The acute phase lasts for a week to 10 days, and convalescence is marked by severe listlessness that persists for several weeks. Investigations were carried out on 60 patients. No abnormal total or differential leukocyte counts were obtained, nor were any abnormal cells discovered. The heterophil antibody test was consistently negative, as were routine complement-fixation tests against influenza viruses A and B, Q fever, psittacocis, venereal lymphogranuloma, and mumps V and S antigens. Some serums were tested and found negative for Toxoplasma infection. Bacteriological examination of throat and feces, when warranted by physical signs, revealed no abnormality. Throat washings, conjunctival swabs, and specimens of feces investigated at the Virus Reference Laboratories, Colindale, London, have been negative for antibodies against the "adenoidal-pharyngeal-conjunctival" or "acute respiratory disease" group of viruses. All ages and both sexes were affected. The incubation period was between five and 10 days. Laboratory investigations are still being carried out on new cases.

Amputation Due to Gas Gangrene.—Damages of $5,600 were awarded on July 29 to a woman, aged 39, whose arm had to be amputated after a fall following which gas gangrene developed. In addition, her husband was awarded $5,600 for the loss of her services owing to her disabilities. Both the patient and her husband sued the South-West Metropolitan Regional Hospital Board, the West Dorset Group Hospital Management Committee, and the physician concerned for negligence in treatment, which was denied by all parties. An unpadded plaster was applied to the arm, the radius and ulna of which were fractured; the broken fragments had caused a small puncture wound. Good practice demanded that a compound fracture, such as this was, should not be enclosed at once in an unpadded cast. Penicillin or some other antibiotic should also have been administered. Severe interference with the circulation of the blood resulted from the plaster being too tight. The arm began to swell, and it was claimed that the plaster should have been split, although this was not done. The arm finally had to be amputated. The judge did not blame the physician for not suspecting or diagnosing gas gangrene, but he said that the fitting of a close and unpadded plaster immediately after the reduction of the fracture interfered with circulation, creating a condition favoring infection.

Rockefeller Grants.—Grants from the Rockefeller Foundation for the second quarter of the year exceeded $5,600,000. In Britain and the Commonwealth the two major benefactions to medicine were a five year grant of $314,000 for the medical faculty of the University College of the West Indies, Jamaica, to help expand the research and teaching program based on the study of local diseases and health problems and $156,000 for laboratory facilities at Oxford for the new Regius Professor of

Medicine, Prof. G. W. Pickering. The costs of a sabbatical year at Oxford for an American professor of physiology were also paid, as were two grants to two British universities, one to support Prof. L. S. Penrose's research on human genetics and another to Queen's University, Belfast, to help Prof. G. W. A. Dick's investigations on viruses. The foundation has also announced a five year grant for the establishment of a nurse teaching unit at Edinburgh University, which would be the first of its kind to be formed within a British university. The court of Edinburgh University graciously accepted the gift, and a committee has been appointed to establish the unit, which would prepare teachers and administrators in the nursing profession, with the object of providing a regular supply of well-trained nurses.

Breast Feeding.—Hytten and Thomson (*Brit. M. J.* 2:232, 1955) examine the incidence and duration of breast feeding in the Aberdeen area. In all parts of Great Britain the official policy is to promote breast feeding whenever possible, yet its success varies from one area to another. The incidence of successful breast feeding was defined as the proportion of babies wholly fed on the breast during the first three months of life. After three months mothers commonly introduce supplementary feedings, and it is difficult to know what contribution breast milk is making to the child's total food intake. The present study was based on records of 2,404 babies born in maternity hospitals, nursing homes, and private homes. At the age of three months 35.6% of the infants were wholly breast fed, and after six months 24.5% were still feeding from the breast, although most were receiving supplementary food at this time. After discharge from hospital the older mothers nursed their babies longer than did the younger ones. At three months only 25% of mothers aged 20 or less were still breast feeding, compared with 39% of women over 30. The incidence of breast feeding was higher after the second than after the first pregnancy and then declined with increasing parity. After breast feeding had been established its maintenance was largely determined by good maternal health and favorable social circumstances. There was a comparatively high incidence (45%) at three months in women whose babies were delivered at private nursing homes. Physical condition and living conditions were also factors. Of women graded as having good physique and health, 40% breast fed their babies for three months, compared with 31% of those graded fair and 23% of those graded poor. Where the housing conditions were such that there was one person per room, the incidence of breast feeding at three months was 42%. This fell to 28% when there were more than two persons per room. At four months the growing infant may require sufficient milk daily to supply 1,100 calories. This means that a moderately active mother who is lactating needs over 3,000 calories daily. Relatively few women have the appetite for this. It is also cheaper, as many poorer mothers have found, to feed the baby directly with dried cow's milk because the latter obtained through the National Health Service costs about one-tenth of that supplied through breast feeding. Thus breast feeding, once established, is most likely to be successfully maintained by healthy women who take and have the appetite for a sufficient diet, who can take the care of a baby in their stride, and who do not suffer from intercurrent morbidity. These circumstances are more common in the well-developed and educated women in the upper social groups.

Medical Liaison with Uganda.—A liaison between the pediatric services of Uganda and those of the Hospital for Sick Children, Great Ormond Street, London, has recently been inaugurated. A senior resident from the Hospital for Sick Children has been sent to Uganda for a two year period, to be followed in turn by further residents. In addition two nurses from the hospital volunteered to go out and take charge of the children's wards for a similar period. Each year one of the hospital specialists will pay a month's visit to Uganda. The purpose of the visit is to study the problems of tropical pediatrics, since many postgraduate students from tropical countries attend special courses at the Hospital for Sick Children, where their special problems are not always understood. It is also hoped that the visits will improve the care of the sick African child by introducing up-to-date methods. The scheme has been promoted with the financial assistance of the Colonial Office and the cooperation of Makerere College at Kampala. The experience obtained by the visiting physicians and nurses will widen their horizon and increase their responsibility. Disease in the tropics is often encountered in the raw and florid state not seen in British hospital practice.

Suicides.—In his report of 1954, Dr. D. H. Geffen, health officer for Hampstead, examines the causes of the high suicide rate in this suburb of London. In 1950 Hampstead had the highest suicide rate in the country—28.7 per 100,000 population. In the following years the rate fell, but it is still high. Dr. Geffen attributes this to the relatively high proportion of the population in the upper social groups and upper income levels. He also remarks that a high proportion of the population of Hampstead, as in other areas with a high suicide rate, live in lodgings, boarding houses, or rooms. Some of these people may be those who leave their own home towns and come to London in search of employment. Dr. Geffen says that, although it is popularly supposed that a person who threatens to commit suicide seldom does so, all such threats should be taken seriously, and the public should have less easy access to dangerous medicines in lethal quantities. Referring to fashions in methods of suicide, which he refers to as a mentally infectious disease, Dr. Geffen deplores the publicity given to such methods in the popular press.

Prefrontal Leukotomy and Legal Responsibility.—One of the risks of prefrontal leukotomy is that the patient's sense of responsibility and his social values may be reduced. This was in evidence during the trial of a man charged with stealing cigarettes at Bristol. The accused admitted stealing the cigarettes from his employers. The trial, however, was postponed pending a medical report, when it was learned that the man had become irresponsible after a prefrontal leukotomy four years previously. Before this he had been a good worker, with employment for 28 years in one position, but three months after he had left hospital he was discharged as unsatisfactory. He had since been divorced and had been frequently seen wandering about with no fixed address. In spite of the medical evidence, the man was fined $11.20 by the magistrates for stealing.

Illegal Accouchement.—According to Section 9 of the Midwives Act, 1951, it is an offense punishable by a fine of up to $28 for any person, male or female, to attend a woman in labor, unless this is done under the direction and personal supervision of a qualified medical practitioner. This does not apply to medical students or midwives, nor to cases where attention is given in emergency because of unavailability of a physician. This section of the Midwives Act was invoked in a case before the courts. A man claiming that he was a "natural healer" and a diet reformer was prosecuted on July 28 for attending his wife in childbirth and for delivering the baby himself. The man stated that it was the second child he had delivered. A fine of $8.40 was imposed.

ITALY

Morbidity in a Sanatorium.—According to Teriggia and Baroni in *Notiziario Sanitario* (18:2 [March 2] 1955), 39 cases of tuberculosis occurred among the personnel of the Sondalo Village Sanatorium over a seven year period and among an average of 1,250 persons in charge of the patients. The highest rate of tuberculous morbidity was observed in 1952 with 11.4 cases per thousand. During the first two years (1947 and 1948) no cases had been observed. The highest rate of morbidity (6.1 to 6.6 per 1,000) occurred in persons in their second to fourth year of seniority in the sanatorium. Most cases occurred in persons in the 24 to 30 year age group. The disease occurred in one physician and 10 nurses, with a rate of 6.2 per thousand, and in the male employees, with a rate of 5.5 per thousand. The above rates of morbidity are lower than those reported in similar sanatoriums in Italy and other countries.

PERU

Nutritional Guide for Mothers.—The enormous incidence of malnutrition among infants, especially of the poorer classes, constitutes one of the most pressing problems facing the Ministry of Public Health and Social Welfare. Although an energetic campaign to improve the situation has been carried on by the Central Organization of Social Assistance, a voluntary agency founded by Mrs. María Delgado de Odría, wife of the President of Peru, the results to date have been disappointing. The lack of education of most of the mothers has prevented their effective cooperation. For this reason, the nutrition department of the Ministry of Health has prepared a nutritional guide especially for mothers of the lower classes. In this project Dr. Martha Trulson of Harvard University has acted as a technical adviser. The peculiar feeding habits and the foods commonly used in each rural area have been considered, so that the mother, wherever she is, can feed her child in the best way possible according not only to her social and economic conditions but to the ecologic conditions of the place where she lives.

Society of Public Welfare.—At the meeting of the Society of Public Welfare of Lima in July, Dr. Oswaldo Hercelles reported that the budget of the institution for 1955 was about $3,295,522. In Peru most social welfare functions, including hospitalization of medically indigent, are still in the hands of voluntary welfare organizations, whose main support comes from lotteries and rentals. Although the total budget for 1955 is $195,125 higher than for 1954, the deficit is smaller, being $333,063 compared with $478,986 in 1954 and $760,295 in 1953. The welfare agencies support six hospitals, which have a total of 4,029 beds. In 1954, 68,741 patients were hospitalized, or 3,526 more than in 1953. The outpatient consultations have similarily increased from 426,248 in 1953 to 538,687 in 1954. The average cost of maintaining a patient in such hospitals is $1.20, which is much less than the cost per patient in the hospitals supported by the government. This discrepancy cannot be overcome unless larger amounts become available to the welfare agencies.

Treatment of Tuberculosis.—At the postgraduate course given at Arequipa in July, Prof. Orrego Puelma, speaking on the treatment of tuberculosis, said that isoniazid appears to favor cellular metaplasia through direct action on the connective tissue, and, although this may result in complete resorption or fibrosis, it may lead also to an increase in caseation. A combination of streptomycin and isoniazid affords the most reliable treatment, and aminosalicylic acid is recommended only for patients in the acute stages and in the treatment of tuberculous meningitis. Much better results were obtained in the treatment of tuberculous bronchitis by giving oxytetracycline with streptomycin than with streptomycin alone or in combination with any other known antituberculous agent. Large doses of vitamin C and the vitamin B complex constitute a valuable adjunct to treatment.

Hypertension.—At the same postgraduate course, Prof. Rojas Villegas said that a combination of pentolinium tartrate with Rauwolfia serpentina is the safest and most effective method of treating hypertension and that even malignant hypertension sometimes yields spectacularly to this therapy. The average daily dose of pentolinium tartrate used was 140 mg. and of reserpine, 8 mg.

Hospital Administration.—An inter-American seminar on hospital administration, organized under the auspices of the American Hospital Association and the Inter-American Hospital Association in collaboration with the most important Peruvian medical, social, and public welfare agencies, was held in Lima in July. The failure of the nonfederal hospitals to gain the approval of the Inter-American Hospital Association is primarily due to their lack of funds. Of about 16,000 beds available in all the hospitals of Lima, 4,027 are in these nonfederal hospitals. Although their support has increased in recent years, the care of the patient is still inadequate more often than not, and the clinical records are incomplete. This is particularly unfortunate in view of the fact that many of these are teaching hospitals. Although the standards in the federally supported hospitals are much higher, the Worker's Hospital of Lima is the only one that has gained the approval of the Inter-American Hospital Association.

Psychiatric Campaign.—At the Second Peruvian Psychiatric Journeys held in Trujillo in July, the general lack of psychiatric services outside of Lima was again deplored. Help from the government and private institutions has been almost nil, but it is hoped that the government will initiate an active program soon.

SWEDEN

Use and Abuse of Medical Certificates.—According to one of the statutes of the Swedish Medical Association, the physician who issues a medical certificate must confine himself to his own observations and must also safeguard his patient's interests. This ruling has acquired exceptional significance in the light of recent events connected with a movement by the police of Stockholm and Gothenburg for more pay. On the evening of June 22, the head of the police in Stockholm announced that about 250 policemen had declared themselves unfit for service on account of illness. Next morning the number of policemen in Stockholm on the sick list had risen to about 450, and by the evening of June 23 about 700 policemen, or practically all the policemen required for traffic regulation, had been reported as sick. The same malaise overtook about 100 policemen in Gothenburg. The Minister for Internal Affairs reacted by calling up policemen from other parts of Sweden and making arrangements for drafting them to Stockholm and Gothenburg. He remarked that neither of these towns had been struck by any great wave of illness involving other members of the community and that the higher officers in the police force and the members of its criminal service had been comparatively exempt from illness. For these and other reasons he suspected that the sudden crop of medical certificates of ill health was the outcome of an organized action directed against an important function of the community. Because such action could not be tolerated, he appointed a commission of inquiry composed of three members, one of whom was a high-ranking physician attached to the Sabbatsberg Hospital in Stockholm. In *Svenska läkartidningen* for July 8, it was pointed out that between June 18 and 27 a total of 448 policemen in Stockholm were certified by 92 physicians as suffering from some illness or other. It was also remarked guardedly that it was impossible to say to what extent these physicians may have erred. The answer to this question must wait till the commission of enquiry has published its findings.

Teaching Pathology in the United States and Sweden.—In the fall of 1954 a study of the teaching of pathology at nine medical schools in the United States was undertaken by Dr. Nils Ringertz of the Sabbatsberg Hospital in Stockholm. He found that in eight of these schools teaching was based on the same main principles, whereas the ninth school (Western Reserve University in Cleveland) represented a bold experiment on new lines. His report on this study in *Nordisk medicin* for June 17 tells what the American student does to master the elements of pathology, what examinations he has to pass, and what textbooks he reads. The author also shows in which respects the United States and Sweden differ most in the teaching of pathology. Difficulties over the prompt undertaking of postmortem examinations in the United States are a handicap to the teacher. The typical American student assists in a comparatively small number of autopsies, and his study of isolated, prepared organs is a poor substitute for the complete autopsy. It is, in the opinion of Ringertz, a pity that most experienced pathologists in the United States seldom teach by the autopsy table. On the other hand, keen appreciation is expressed of the United States teaching of pathology in general, and it is noted that more hours are devoted to this subject in the United States than in Sweden. In a table dealing with four Swedish and three American schools (Cincinnati, Harvard, and Cornell), the author shows how much better off the American student is with regard to the number of his teachers, with one teacher to every four students at Harvard and one to eight in Uppsala. Yet when the Swedish student has completed his course in pathology, Ringertz believes he is endowed with more clinical experience and a greater capacity to correlate pathological with clinical findings than his counterpart in the United States.

Thallium Poisoning.—Fairly extensive use is made in Sweden of thallium as a rodenticide. At the department for industrial diseases of the Karolinska Hospital in Stockholm, four cases of thallium poisoning have recently been investigated by Glömme and Sjöström, who point out in *Svenska läkartidningen* for June 3 that thallium poisoning is apt to be overlooked by physicians if they do not inquire into the occupations of their patients because the symptoms may be of a general character. One of their patients was a woman, aged 48, who complained of tingling in the tips of her fingers, the soles of her feet, and her toes without presenting any definite manifestation of polyneuritis. Her complaints might have been dismissed as due to the menopause had not thallium been found in her urine and had not a careful inquiry revealed that the intensity of her symptoms had fluctuated with the degree of exposure to thallium. In this and in the other three cases the thallium sulfate had been handled partly in the dry state and partly as a solution for the impregnation of wheat. Makers of rat poison have hitherto been careless in the handling of thallium with their bare hands, and it is probable that when the necessary precautions are taken and the spilling of a thallium solution on skin and clothes is avoided, this form of industrial poisoning will be eliminated.

SWITZERLAND

A Rare Peromelus.—At the annual meeting of the Swiss Pediatric Society, H. Käser described a female infant in whom, instead of normally developed limbs, there were only stumps with no distal parts. At the age of 1 year the child had conical stumps 11 cm. long in lieu of arms and cylindrical stumps 4 cm. long instead of legs. The somatic and psychic development was otherwise completely normal. Radiograms of the upper extremities showed humeri minus the distal articular segment. The lower extremities had a bone formation that was almost triangular. This case, like those reported in the literature, does not clarify whether the defect is in the parents' genes or is caused by chemical or physical influences, disease of the mother, or a dietary deficiency. It can only be said that the condition is a malformation by inhibition and not a mutilation from intra-amniotic processes; this is shown by the symmetry and lack of scars. Embryologic considerations suggest that the teratogenic period is at the beginning of the second month of fetal life, at the time when differentiation of the extremities takes place.

Pitressin Test.—At the same meeting, Vest of Basel suggested that the commonly used Volhardt thirst test of urinary concentration could be replaced in children by a Pitressin test, which has the advantage of requiring no deficiency in liquids or foods. He practiced both tests in 47 infants and children whose ages ranged from 5 days to 13.5 years and compared the highest specific gravities obtained. The quantities of Pitressin used varied according to the age of the subject (from 1 to 10 units). In general, no significant differences could be found between the two tests in regard to the specific gravity of the urine, although the figures obtained from the Pitressin test were usually a little lower than those of the Volhardt test and varied more widely from the mean value. This is not true of infants less than 3 months old, since they normally have urinary hypotonia. After both tests there was distinct elevation of the specific gravity, but it was less after injection of the hormone. With neither of these tests were values obtained that were as high as those in older children. Thus the Pitressin test can be used in children for examination of the renal function except in young infants, in whom the kidneys' capacity for concentration is as yet insufficiently developed.

Tuberculosis.—Although in the last 50 years the mortality from tuberculosis in Switzerland has greatly diminished, the same is not true for the incidence of the disease. According to Press, there is a morbidity of 1.1 to 1.5% from open tuberculosis in adults, while the morbidity from tuberculosis as a whole has consistently exceeded 4.9%. Ott has pointed out the disproportion between the rapid decrease in mortality from tuberculosis and the constancy of the number of patients with the disease. Switzerland has made a great effort to attack the sources of the infection. Prophylaxis is directed toward prevention of infection, increase in defensive forces, and protection of the organism by BCG vaccination. In 1923, Adler and Loeffler first suggested that large groups of persons be examined by means of serial roentgenograms. This examination is usually practiced today in the form of radiograms made in various large groups and, eventually, among the contacts of patients with known tuberculosis. The effect of this method is clearly shown in the results of a test carried out in the Zürcher Oberland, a region that is both agricultural and industrial. In the 1946-1947 campaign radiography revealed 600 cases of tuberculosis among 46,832 persons examined; 50% of these were unsuspected. In the 1949-1950 campaign 471 cases were discovered in 37,629 persons examined; 54% of them were unsuspected.

The decrease in mortality is due not only to the progress made in medicine but also to improvements in the standard of living. Diet has been better adapted to the needs of the organism, and housing conditions have become more healthful. The reduction of working hours and consequent normalization of the work-rest ratio have contributed to this improvement. Finally, thanks to a way of living that incorporates more sun and light, persons have acquired more physical resistance. The physicians of the Scandinavian countries are to be credited with the institution of BCG vaccination on a large scale. This program was introduced in Switzerland and is now an integral part of antituberculous prophylaxis. In some cantons, realization of the program has been made possible through close cooperation between the medical profession and the Antituberculous League. For example, in the canton of Zurich mass vaccinations are performed every four or five years and mass roentgenography every three years. Periodic vaccination is necessary because of the limited duration of the protection afforded by the vaccine. BCG vaccination is voluntary and furnished gratis. During the period from 1950 to 1953, 91,500 residents of the canton of Zurich were tested with tuberculin; 53,300 in whom there was a negative reaction had been vaccinated with BCG. After a period of controversy, the Swiss medical profession decided in favor of the vaccine. Recently the city of Geneva opened its vaccination center. Considering the epidemiological conditions prevailing in Switzerland now, vaccination would seem to be indicated in adolescence. BCG vaccine will be administered in the higher classes of elementary school so that the young people can be fortified against the time when they will enter the atmosphere of factory and shop, where the risk of infection is great compared with that in the protected atmosphere of school and family. Vaccination will be offered to young men entering military service. The physician-in-chief of the Army has asked that the recruits be vaccinated before the start of basic training. Vaccination is essential for the following groups of the population: hospital personnel; medical students; children, adolescents, or young adults from tuberculous environments; and other groups particularly threatened with the disease. It would be desirable for all students and apprentices to be protected, but these are difficult groups to reach. BCG must never be imposed on the population but must always be offered on a voluntary basis.

The drop in tuberculosis mortality of the last 10 years has been mainly the result of the use of antituberculous medicaments. Patients with tuberculous meningitis, pulmonary tuberculosis, and tuberculous disease of the mucous membranes, bones, and kidneys are especially benefited by these agents. The concept of the tuberculous phenomenon has been completely revised. The old methods of treatment have been almost entirely abandoned in favor of resection, which has the advantage of eliminating the diseased portions from the body. In Switzerland, resection has superseded pneumothorax, both intrapleural and extrapleural as well as thoracoplasty and plombage. Switzerland's mountain sanatoriums are now assuming more and more the function of hospitals, rather than that of convalescent homes as they were originally. Diagnosis and therapy demand specialized equipment and the services of a specialized surgeon. Most sanatoriums are acquiring these things and managing to weather the financial strain involved, but some have had to close their annexes. There is also a certain trend away from these institutions. Treatment at home has been greatly facilitated and probably also abused to some extent.

Small Hole in the Iron Curtain.—For the first time since 1945 the Polish government has allowed a Polish physician to study in Switzerland. Dr. Nyklewicz, director of the Bialystok (Poland) Hospital and head of the Clinic of Gynecology and Obstetrics, is now studying at the University of Geneva. It was in 1954, at the International Congress of Gynecology and Obstetrics held in Geneva, that a member of the Polish delegation started negotiations for this trip.

MISCELLANY

SMOKE ABATEMENT

Richard Gordon

Reprinted with permission from Punch, *Feb. 24, 1954.*—Ed.

Smoking has a particularly strong appeal to the British public because it is our only vice which is wholly respectable. Clergymen puff away blamelessly, in life and in advertisement; schoolmasters bathe their corrected exercises in rich blue clouds; dons traditionally pickle their undergraduates with latakia. Nothing creates an appearance of thoughtfulness, solidarity, and honesty in the British mind more powerfully than a pipe.

Politicians who would rather defy a Whip than be spied by their constituents holding a glass, pose proudly for photographs with their smoking insignia. What Englishman can picture a safe-cracker pausing at his job to relight his favourite briar? And who thinks the worse of Sherlock Holmes for continuously filling himself with noxious agents by the mighty bowlful?

The discovery of the spoil-sport statisticians that smoking is really a more dangerous pastime than speedway racing has already propelled quiet ripples of confusion through the medical profession. Most doctors smoke, and addicts are poor arbiters of their addiction: while the practitioner who comes mellow from his after-lunch pipe is murmuring in his surgery, "A little of what you fancy . . .", his colleague, white-hot in the fresh fires of abstinence, sends his patients away emptying their cigarette-cases like loaded revolvers.

I gave up smoking myself when I was a medical student, after discovering one afternoon, in the index of Price's *Textbook of the Practice of Medicine,* the entry between Smallpox and Snakebite:

Smoking a cause of chronic pharyngitis
  a cause of ptyalism
  cardiac symptoms of
  excessive, enterospasm in
  harmfulness of, in intestinal spasm
  in relation to atheroma
    to gastric and duodenal ulcer
    to gastric irritation
    to intermittent claudication
    to laryngitis
    to palpitation
    to pulmonary tuberculosis
    to thrombo-angiitis obliterans

This seemed to describe so clearly my condition when groping for the morning cigarette that I instantly gave my daily packet to the mortuary attendant, and decided to discover by private research why other people tolerate these life-long symptoms as cheerfully as a schoolboy's split knees. This is a difficult clinical investigation, because nobody will admit he smokes because he wants to. The reasons most commonly offered in the consulting room for a chronic bronchitis and mahogany fingers are:

Me nerves, Doctor
Sort of helps me to think
Can't digest nothing otherwise
Keeps down the weight
Keeps up the weight
Everyone else does
Habit, I suppose
Keeps the moth out of the carpet.

A search for more precise reasons from my scientific colleagues barely furthered the investigation. A physiologist declared that if you paint the nerves in a cat's neck with a solution of nicotine the animal gives an enormous wink. This, he explained, is why cats don't smoke, but he could go no further. A hospital pharmacologist, who smokes an old pipe bilaterally notched through a lifetime of lighting from Bunsens, explained that a cigarette contained enough nicotine to slaughter an alley-ful of cats, was packed with ammonia and other unpleasant vapours, and gave off more carbon monoxide than an old car. He had no explanation why a queue of men, during the war, were prepared to stand in the rain for half an hour on the off-chance of being permitted to buy a packet of these bundles of poison. A psychiatrist merely murmured darkly about remnants of infantilism, and recommended playing with an abacus after dinner instead. It seems that no smokers can possibly enjoy smoking; they smoke only because they don't enjoy it if they aren't.

This makes the problem of stopping smoking impossibly complicated, and the brave British public will probably continue to puff itself into a premature grave to the dismay of the Ministry of Health and the delight of the Exchequer. The common man has accepted without grace the assurance that the more he smokes the more likely he is to kill himself, for he has a constitutional dislike of statistics and his common sense tells him (1) lots of people smoke heavily and don't get cancer; (2) lots of people get cancer and don't smoke heavily. In the last century his common forbears decided for the same reasons that germs don't give you diseases like typhoid and cholera; but common sense never lacks its martyrs, and their bones form thick memorials to our forgotten centres of insanitation.

Medical science never takes away without giving something in return. In the last ten years it has discovered you can drink as much as you like if you swallow plenty of vitamin B, and your liver won't end up as a lantern slide in a temperance lecture. If everyone smoked less and drank more the Exchequer wouldn't suffer and we should all be healthier. Possibly we would beat our wives a little, but what are a few more bruises and fractures to the National Health Service? This is an unsentimental age.

ROGER GILES, SURGIN

Reprinted with permission from the Chicago Daily Tribune. —Ed.

Skulemaster, Groser and Hundertaker, respectably informs ladys and gentlemen that he drors teef without wateing a minit, and sells vizicks for a penny a peace; Joes-harps, penny wissels, fryin-pans and other moozikal Hinstruments, hat grately reydoosed figers. As time is cruel bad I begs to tell ee that I also teaches yung ladys and gentlemen their grammur in the purtiest mannar and grate care is taken of their morrels and spelling. Halso I sells ginger beer, matches and other pickles such as hepsom salts, hoysters, and winzer sope. I also taches gography, rithmetic, and jimnasticks. Gode Save Thee Kinge.

THE LEISURE CORNER

MEDICAL POETRY

Doctors are writing creatures. Some of them seem to write as naturally as beavers build dams or sea gulls prey upon shellfish, but usually in their spare time. This is only natural due to the fact that physicians from the beginning are trained in writing down case histories, summaries, diagnoses, and prognoses. Perhaps the most universal of all hobbies for all physicians is book-collecting, but writing probably comes next, and each reinforces the other. Every physician has a shelf of books, even if it is only the textbooks he studied when he was in medical school, but nearly every physician has a few volumes that represent his personal choice in reading. Nearly all doctors spend some time reading medical journals, and most spend some time reading general literature. It is not an obsession, it is a natural habit, resulting from the methods of training in modern (and for that matter, in ancient) schools of medicine.

As a special department of this phenomenon, there is the field of poetry that somehow seems remotely connected with music in that poetry is more musical than prose. Doctors also are musicians, but less prominently. It might be remembered here that poetry, music, and medicine were all the special interests of Apollo, sometimes called the "God of Medicine and Poetry." However that may be, doctors see so much and experience so much and do so much that is active, useful, and noteworthy, it seems only natural that they should record what they see, experience, and do in prose or poetic fragments. Some have even achieved more. For example, one of the greatest of all ancient poets was probably a physician. That is to say he was the equivalent of what we consider the scholar-physician today. Actually the word physician means "naturalist" and Lucretius was that, preeminently. His epic poem "Concerning the Nature of Things" covers just about everything medicine, psychiatry, and epidemiology include today. Almost nothing is known about his life, but histories estimate he may have lived between 98 and 55 B. C. There is much speculation about him, his health, and his habits, but his work speaks for him more eloquently than histories could. It is a magnificent achievement, and the many translations starting with that of Dryden give an impressive view of the mentality of the author. Particularly of interest to physicians is the last part of this epic poem that describes graphically a plague that Lucretius had heard about from Thucidides and later documented for himself in Latin verse. He is classed among the Epicurean philosophers, but it is as a poet that he is outstanding.

Many authors believe "Concerning the Nature of Things" by Titus Lucretius Carus to be the third greatest poem in the world, the first two being the Iliad and the Odyssey attributed to Homer. Some authorities claim that Lucretius has drunk deeper of the scientific spirit than any other poet of ancient or modern times except Goethe, who was himself a physician of sorts. That is to say, in his universal quest for knowledge he embraced all he could of contemporary or ancient and medical knowledge. This particular poem "Concerning the Nature of Things" bears all the earmarks of having been written by a man who was clinically observant and medically oriented. It is a profound book that must be read slowly and requires intensive study. So it is that any consideration of medical poetry or poet-physicians must begin with consideration of Titus Lucretius Carus.

After him, the field is very wide and plentifully stocked with poets who were physicians and physicians who were poets of all sorts. A more complete account of this subject may be found in "Poet Physicians," compiled by Mary Lou McDonough and published by Charles C Thomas, Publisher, in 1945. Let us consider Wang Wei, a young country doctor in China who was also a public health officer in his own community. He was probably an herb doctor, as all Chinese medicine was herb medicine in his time (699-759 A. D.), but his paintings and his poems are still counted among the irreplaceable treasures of his homeland. Read in translation today, his poems seem strikingly modern.

Medical students today memorize the cranial nerves by learning the jingle: "On old Olympus' piny tops, a Finn and German vainly ate hops," or some such version of this couplet. This device represents a hangover from a time when a vast amount of medical knowledge was put into rhyme and memorized. "The School of Salerno" is an example. It is a long poem written by one or more authors, probably all members of the faculty of the School of Salerno and as such it is one of the oldest medical poems. Its "Regimen Sanitatis" was written in double-rhymed Latin hexameter about 100 A. D. It was first printed in German in 1472 and later reprinted in Latin and has since been widely quoted. For 500 years almost every physician in Western Europe was thoroughly familiar with this remarkable poem, which assumed of itself a kind of oracular authority.

No list of physician-poets would be complete without mentioning Girolomo Frascatoro. He was indeed a remarkable man and for many reasons. He knew astronomy, philosophy, mathematics, and what geography and botany as was taught at that time (1483-1553), but his crowning achievement is the poem in which he described syphilis precisely, telling about its incidence and course in various countries of Europe. This poem titled "Syphilis Sive Morbus Gallicus" describes the use of a heavy metal (mercury) in the treatment of that disease and contains the germs of many other ideas that later sprouted to full growth in the work of Pasteur, Schaudinn, and Fleming. This poem is a remarkable combination of practical information and symbolic explanation. In the book he tells how a young man infected with syphilis was supposed to have been cured by a goddess who bathed him in a lake of silver in an underground cavern. Psychoanalysts would find delight in that.

There were many physicians who chose poetry as a means for spending their spare time. To mention but a few—Thomas Campion, who was a contemporary of Shakespeare; Abraham Cowley, who came a little later; Henry Vaughn, noted among the metaphysical poets; and John Arbuthnot, who lived during the Golden Age of English literature. Arbuthnot was a Scottish physician. He received his degree as a doctor of medicine at St. Andrews' in Scotland and was appointed Physician Extraordinary to Queen Anne. Mark Akenside (1721-1770) wrote a remarkable thesis on the development of the human fetus and at the same time produced his epic poem "The Pleasures of the Imagination." There are dozens, actually, some known for a single poem, some for one book, and some for a more impressive output, but all sharing the common factor of the medical background and the discipline of medical training.

Few people know that Edward Jenner (1749-1823), who began the world's greatest conquest of disease with the discovery of and the application of vaccination and who was a student and an interne of the great Dr. John Hunter of London, also found time to write poetry. His "Address to a Robin" and "Signs of Rain" are classical examples of poetic art. Then there was Schiller, who completed his medical training at the age of 21 and who was drafted into military service as a regimental surgeon at Stuttgart. His play "The Robbers" and his famous dramas, "William Tell" and "Maid of Orleans" will be remembered as long as the German language lasts. Besides, he was the friend of Goethe and, incidentally, was the son of an Army surgeon.

Mention should also be made of John Keats, who was appointed as a dresser at Guy's Hospital in London in 1816 and in July of the same year passed with credit his examinations as a licentiate at Apothecaries in London because he abandoned surgery, giving as a reason the fact that he felt himself not fitted for it. Tuberculosis mowed him down in 1821 but not before he had written some of the finest poetry in the English language. One might also list Thomas Holly Chivers (1807-1858), who is remembered partly for his association and his controversy with Edgar Allen Poe. Chivers graduated as a doctor of medicine in 1830 from Transylvania University, Lexington, Ky., and was offered a chair in that university 26 years later. For this period, he wrote poetry that was unique. He was also a painter and an inventor. He designed a machine to split the fibers of silk from the cocoons of silkworms.

The crowning achievement of the muse in the 19th century in the United States of America was Dr. Oliver Wendell Holmes, born in 1809, died in 1894. He almost spanned the 19th century. A preeminent physician, he taught at the Harvard Medical School and practiced in Boston. His most famous article was "The Contagiousness of Puerperal Fever," which everyone now takes for granted, but in his day it was a very novel idea. He will always be remembered for "The Autocrat of the Breakfast Table," "Old Ironsides," "The Wonderful One-Horse Shay," and his most distinguished poem "The Chambered Nautilus." No poet writing in England or America has ever produced a single poem of greater distinction and beauty. It embodies a spiritual philosophy based on materialistic observation that even today is incomparable, and rarely indeed does anyone even approach the exalted level of the human utterance this poem expresses.

As for the present century, it is too early to tell who the medical poets are, but certainly preeminent among them is William Carlos Williams, M.D., now three score years and ten and a longtime practitioner in New Jersey. His many volumes will reward the reader who seeks them out. Even at 70, he continues to write with the tongue of youth, which is the tongue of poetry. And also there is Merrill Moore, whose efforts on behalf of the sonnet have been poetically therapeutic and possibly not in vain. Moore is known for his many books, all products of his leisure time. (See "Poet and Psychiatrist" by Merrill Moore, M.D., a clinical portrait with an appraisal of his poems by Henry W. Wells, published by Twayne Publishers in 1955.) He works from nine to five as a practicing psychiatrist in Boston. His books, "The Noise That Time Makes," "Six Sides to a Man," "*M*: One Thousand Autobiographical Sonnets," "Clinical Sonnets," "More Clinical Sonnets," "Illegitimate Sonnets," "Case Record from a Sonnetorium" and "A Doctor's Book of Hours" are works that bear the seal of the physician.

MEDICAL FILM REVIEWS

One Victory: (Cleared for television) 16 mm., color, sound, showing time 10 minutes. Produced in 1954 and procurable on loan or purchase ($75) from University of Minnesota, Audio Visual Education Service, Basement, Wesbrook Hall, Minneapolis 14.

The purpose of this film is to show a case history of a young girl who is given the opportunity of having a normal life through the efforts of the staff and facilities of the University of Minnesota Heart Hospital and to inform the public of what the Variety Club Heart Hospital is doing. The film shows heart specialists and surgeons preparing the 5-year-old girl for surgery to correct a congenital defect inside her heart. Doctors had been experimenting with animals and found that the heart could be tied off from the body's circulation by the help of a refrigeration blanket for as long as 10 minutes and by lowering the body's demand for oxygen from the blood. This is a reenactment of the successful first attempt to use the new technique on a human patient. This is a film prepared for nonmedical use, to stimulate public interest in the Variety Club Heart Hospital at the University of Minnesota, in particular, and in the possibility of successful results from heart surgery in general. Operative techniques are only suggested, and the audience to be reached seems to be those who are apprehensive about having surgery performed on their children. This film could also be used as a presentation of medical progress with emphasis on the value of research. The photography and narration are well done.

Peridural and Caudal Anesthesia: 16 mm., color, sound, showing time 20 minutes. Prepared in 1954 by Charles C. Wycoff, M.D., University of California, San Francisco. Sponsored by Astra Pharmaceutical. Procurable on loan from Charles C. Wycoff, M.D., San Francisco Hospital, San Francisco 10.

This film presents briefly the anatomy and author's technique in peridural and caudal anesthesia. After an abrupt introduction, demonstrations are made on a skeleton of the method of localization of the site and route of insertion of the needle for both peridural and caudal injections. Demonstrations of these two methods of anesthesia are then made on patients. Emphasis is placed mainly upon the mechanics of insertion of the needles, verification of the sites, and injection of the anesthetic solutions. Unfortunately, much of the narration is too rapid and not synchronized with the image on the screen. Complications are narrated, and their management is briefly considered. The importance of having efficient mask oxygen therapy immediately available should be added to this discussion. This film should include emphasis upon the need for strict asepsis as well as the avoidance of the use of irritating solutions. It would be enhanced by the addition of illustrations and discussion of the methods for localizing and controlling the extent of blocks obtained with these procedures. The photography is excellent. In its present form, this film might be of interest to advanced residents in anesthesiology and qualified anesthesiologists.

Mrs. Hazard's House: 16 mm., color, sound, showing time 13 minutes. Produced in 1954 by King Horton Productions, Los Angeles, for and procurable on loan or purchase ($79.20) from Prudential Insurance Company of America, 5757 Wilshire Blvd., Los Angeles.

The purpose of this film is to educate parents on the need for practicing and teaching safety habits to their children in an effort to help prevent child accidents in the home area. It opens with an animated portion that shows "Mrs. Hazard's House" and many of the hazards that exist in the home area. It is revealed that the animated portion has been a telecast, and a young family group is shown watching this telecast. They comment on the hazards that have been demonstrated and assure each other that no such hazards exist in their home. At this point, the announcer on the telecast speaks to them cautioning that it might be a good idea to look around their home more carefully and suggesting a few places they might check. In the following sequences they check some of these points and find that there are potential danger points for their child. The film closes with the author speaking on the general subject of child accidents. This film is very well done, in particular the parts that graphically present the hazards to be found in the home. This film is recommended for parent groups and classes for prospective parents.

Congenital Absence of the Vagina and Its Treatment: 16 mm., color, sound, showing time 24 minutes. Prepared by Joseph Gaster, M.D., College of Medical Evangelists, Los Angeles. Produced in 1954 by College of Medical Evangelists and procurable on loan or purchase from Joseph Gaster, M.D., 416 N. Bedford Dr., Beverly Hills, Calif.

This film presents an interesting and educational exposition of a relatively uncommon condition. The technique demonstrated is somewhat more extensive than that in common usage but, as employed by the demonstrator, serves the purpose very well. The two cases presented are ideal from a standpoint of showing the problem and end-results. As shown in the film, the creation of an artificial vagina utilizes sharp, blunt section of the genital space and epithelization by means of a split thickness graft over a Pyrex form. There is excellent demonstration of the internal appearances. The photography is also excellent, and there is good continuity with a minimum of extraneous or nonessential footage.

NEW FILM ADDED TO A. M. A. MOTION PICTURE LIBRARY

Streamline Flow in the Veins: 16 mm., color, sound, showing time 10 minutes. Demonstrated by Dr. D. A. McDonald and Dr. E. P. W. Helps, the Medical College, St. Bartholomews Hospital, London. Produced in 1954 by the Wellcome Film Unit, London. Procurable on loan (service charge $2) from Committee on Motion Pictures and Medical Television, American Medical Association, 535 N. Dearborn Street, Chicago 10.

In this film streamlined and turbulent flow are demonstrated in a glass model. Reynold's formula, giving the critical conditions for the change from one type of flow to another, is discussed. By means of dye injected into tributary veins, the type of flow at different points in the rabbit's vena cava and portal venous system is observed. Two practical applications are brought out in this film: (1) the fact that incomplete mixing of the blood in enlarged veins means that samples drawn by needle are sometimes not representative of the total content of the vein; and (2) that localized infections in such organs as the liver can result from the movement of infected material through veins with incomplete mixing. This film will be of great interest to physiologists specializing in the field of circulation, and, since the phenomena it demonstrates are not easily exhibited in the laboratory, it should prove to be of value in courses of physiology for medical students. The authors deserve a compliment for the care with which the materials have been arranged for photographing.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Rheumatic Heart Disease in Scarlet-Fever Patients Treated with Penicillin: A Follow-Up Study After Seven Years. L. Weinstein, N. H. Boyer and M. Goldfield. New England J. Med. **253:**1-7 (July 7) 1955 [Boston].

The authors report observations on patients examined seven years after they had been treated with penicillin for scarlet fever. To provide a basis for the proper evaluation of the observations made in 1953, results of the studies carried out in 1946 are briefly summarized. One hundred sixty-seven patients with scarlet fever were treated by intramuscular injection of 15,000 units of penicillin every three hours for 10 days. Group A Streptococcus pyogenes was isolated in every case at the time of hospitalization. The majority of the patients were 2 to 15 years of age. Electrocardiograms were obtained daily in most patients and every other day in a few. The patients remained in the hospital for a minimum of three weeks, some for longer periods. In 12 of the 167 patients acute rheumatic fever was thought to have developed despite the use of penicillin. One hundred ten of the 167 patients treated in 1946 returned for study in 1953. Of these, 100 had had normal or borderline electrocardiograms, with no clinical manifestations of the rheumatic state, and 10 had been suspected of having had rheumatic fever seven years earlier. None of those without electrocardiographic changes in 1946 had any evidence of cardiac disease in 1953. Of those with prolonged PR and QT intervals seven years earlier eight had definite or "probable" rheumatic heart disease. In six mitral insufficiency and stenosis were present; two of these had aortic as well as mitral lesions. The data presented suggest that penicillin therapy of streptococcic pharyngitis in children, even when applied early, may not significantly decrease the occurrence of acute rheumatic carditis. In children the clinical features of the acute rheumatic state may be markedly suppressed by the chemotherapy of the initiating streptococcic infection so that most or all of the characteristic signs and symptoms are absent and electrocardiographic evidence of carditis becomes the most prominent and sometimes the only diagnostic feature. Because of this it is probably necessary to redefine the present criteria for the diagnosis of acute rheumatic fever, particularly for children with antibiotic-treated streptococcic pharyngitis. Demonstration of prolonged atrioventricular-conduction time, after a latent period, probably is highly significant for the diagnosis of rheumatic carditis in the absence of major manifestations, if the patient can be proved to have had a recent streptococcic infection.

Premonitory Period of Myocardial Infarction. P. Maurice, J.-L. Beaumont, A. Leupin and J. Lenègre. Arch. mal. cœur **48:**551-566 (June) 1955 (In French) [Paris, France].

The authors studied 108 patients with myocardial infarcts and found that 60.2% of them had had the classic form of attack with no premonitory symptoms. This group was fairly evenly divided between those patients in whom the infarction was the first clinical sign of coronary disease and those with long-standing angina pectoris. In 43 patients (39.8%) of the series, there existed a premonitory period the duration of which varied from a few hours to over a month (average 17.1 days). The period was characterized by the appearance or aggravation of angina. There was no fever or leukocytosis and the erythrocyte sedimentation rate was unchanged. Having recognized the premonitory period of myocardial infarction as a clinical entity, the authors made a thorough study of 71 patients with angina pectoris whose usual pattern of pain was undergoing change. No clinical criteria could be set up for determining whether their disease would progress to myocardial infarction or not, but electrocardiography frequently showed anomalies that reinforced clinical suspicion. These disturbances were usually those of acute or subacute coronary insufficiency. In 39 of 62 patients there was an ischemic lesion, subendocardial in 15 and subepicardial in 24; in 20 of the 62 there was an isolated subepicardial ischemia. These anomalies are significant only when their recent appearance can be proved (by comparison with previous electrocardiograms). The finding, in three patients, of a blood hypercoagulability in the days preceding necrosis led the authors to look for such a warning sign in the other patients. Intense or moderate hypercoagulability, as manifested by the in vitro resistance to heparin, was found to be immediate in 49 patients (69%) and secondary in 15 (21%); the authors believe it to be a factor of extreme importance, since it is not ordinarily present in severe angina and may therefore act as a diagnostic indication of impending coronary attack. The 71 patients were given anticoagulant therapy with various agents. Pain disappeared in 64.4% of them, was clearly benefited in 29.5%, was unchanged in 2.8%, and was aggravated in 2.8%. It would seem that treatment with anticoagulants is particularly necessary in, and beneficial to, patients with recent alterations of an established pattern of angina pectoris.

Is Phenylethylacetic Acid Antiatherogenous? J. Cottet and A. Mathivat. Presse méd. **63:**1005-1007 (July 2) 1955 (In French) [Paris, France].

Phenylethylacetic acid has a definite antiatherogenous effect in experimental animals. The authors used phenylethylacetamide (hyposterol) in the treatment of 37 patients with atheromatous cardiovascular disease over a period of from one to six months. It was found that the drug has an effect on the total serum lipids. Cholesteremia was decreased in 75 to 80% of the patients, and this effect was more marked as the amount of blood cholesterol was higher to begin with. The decrease was generally statistically significant and sometimes reached 40 to 50%, even 60%. Normal rates of cholesteremia were not affected. In one-fourth of the patients a transitory rise in blood cholesterol was observed between the fourth and eighth weeks of treatment; this was usually followed by a fall to levels below those seen before treatment. The phenol turbidity reaction of Kunkel was decreased as much as 50%. Lipemia was affected in about the same way as cholesteremia. Lipid fractionation at electrophoresis was modified by hyposterol, with a tendency toward normalization of the profile. It is thus concluded that phenylethylacetic acid acts on the biochemical disturbances that characterize atherosclerosis, tending to restore the organism to normal.

Mitral Disease and Epileptic Syndrome. G. B. Lusiani and G. P. Vecchi. Minerva cardioangiol. **3:**217-223 (May) 1955 (In Italian) [Turin, Italy].

The authors report the histories of five patients with mitral disease, mainly mitral stenosis, in whom a first epileptic attack occurred in adult life and suggested the presence of a relationship between the two conditions. The convulsive attacks with loss of consciousness were true epileptic seizures and not syncopal manifestations with convulsions. Little is known about the mechanism of dependence of epilepsy on mitral disease; many pathogenetic hypotheses have been advanced, but none gives a satisfactory explanation. The authors state that a latent epileptogenous focus might occasionally be disclosed by a hemo-

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dynamic circulatory disorder. Therefore, the condition sine qua non present in these patients before heart disease was, according to the authors, a latent epileptogenous condition, which became clinically evident after a long interruption of the strong systolic contractions followed by acute cerebral ischemia.

Differential Diagnosis Between Bronchial Carcinoma and Unspecific Pneumonia. V. Kesztele. Wien. med. Wchnschr. **105:** 514-516 (June 25) 1955 (In German) [Vienna, Austria].

Seven men between the ages of 40 and 67 are reported on in whom differential diagnosis between unspecific pneumonia, which they had, and bronchial carcinoma, which was suspected, was clarified only by surgical intervention. The subjective complaints of the patients corresponded with those of almost any disease in the thoracic cavity and were of little value with regard to evaluation. There was relatively little irritation causing cough and only moderate expectoration in patients with abscess formation and bronchiectatic cavities. The lancinating pain in the chest and back was most pronounced in the patients with a middle lobe syndrome, and it was somewhat less intense in those with desquamative pneumonia. The involvement of the surrounding pleura played a decisive part in this pain. Patients with desquamative pneumonia of one year's duration associated with abscess formation had the greatest loss in body weight, i. e., 33 lb. (15 kg.), while patients with carnification pneumonia lost 22 lb. (10 kg.) in the course of five months. The duration of the disease varied from six weeks to one year and despite unsatisfactory results from conservative treatment supplementary tests were omitted. Signs of infiltration and disintegration lent themselves to interpretation in the sense of tuberculosis as well as of other parenchymatous diseases, while laboratory and cytological findings proved the absence of tuberculosis in most patients, particularly in those with carnification pneumonia. A malignant condition could not be proved or excluded. Horizontal and transverse tomographic examination supported the suspicion of tumor in five patients. In two patients with interstitial and chronic pneumonia the tomograms were not suggestive of tumor, but in both these patients bronchial narrowing or occlusion was shown by bronchography and bronchoscopy. Bronchoscopic findings were significant in revealing purulent secretion in the patients with abscess formation and suppurative bronchitis. In the other patients, they only showed redness of the bronchial mucosa, and in one patient with desquamative pneumonia, bronchoscopy revealed narrowing of the bronchus, as did bronchography also. All patients had been treated with antibiotics and some of them with sulfonamide compounds and tuberculostatics, but without any improvement in the patients' condition. After exclusion of infarction pneumonia and tuberculosis, surgical intervention seemed indispensable because of the roentgenologically and bronchographically supported suspicion of tumor. Except for one patient with far advanced desquamative pneumonia who died of postoperative hemorrhage caused by erosion and of pulmonary gangrene, the other six patients recovered. Although the most modern diagnostic methods may have their limitations, it would be wrong not to make use of them. The author's cases were reported in an attempt to convince the physician of the necessity of making supplementary studies.

Significance of Tobacco Smoking and Other External Factors in Origin of Pulmonary Cancer. N. Ringertz. Nord. med. 53:951-956 (June 16) 1955 (In Swedish) [Stockholm, Sweden].

The increased frequency of cancer of the lung has brought a change in the relative frequency of the different histological types of the disease. Pulmonary cancer in women has not increased in proportion to that in men. Pulmonary adenocarcinomas, which by and large maintain an even sex apportionment, are assumed to make up the main part of pulmonary cancers on an endogenic basis. The increased incidence of pulmonary cancer is ascribed to increased influence of exogenic factors that act more intensively or have been able to act longer on men than on women. The chief causes are sought in the intensified exposure of large numbers of persons, especially in industrial areas, to carcinogenic substances suspended in the air in more or less closed places of work and in exposure to tobacco smoke. Some parallelism is demonstrable between cigaret smoking and the incidence of cancer of the lung after 15 or 20 years, and the numerous comparative investigations of the smoking habits of patients with the disease and of the control series show consistent results. Experimental evidence for correlation between tobacco smoking and pulmonary cancer is less strong than the statistical evidence. If the increasing incidence is to be arrested on a long-term basis, a campaign must be instituted against heavy smoking, particularly the cigaret smoking of young persons, and measures must be taken to reduce carcinogenic pollution of all places of work and to promote further research for the identification of carcinogenic substances in tobacco. Investigations during recent years testify to carcinogen in tobacco smoke, although in low concentration. Experimental studies are directed to the establishment of the amount and kind of carcinogenic substances in tobacco and its combustion products. The chemical composition of these carcinogens is not yet known. The fact that high combustion temperature is needed for the smoke to contain carcinogens may perhaps afford an explanation of why according to statistics cigaret smoking is more dangerous than pipe or cigar smoking.

Practical Data on Personal Experiment with Trypsin Aerosol Therapy: Report of 312 Patients. A. Biron and L. Choay. Presse méd. 63:1007-1008 (July 2) 1955 (In French) [Paris, France].

Three hundred twelve nontuberculous patients with bronchiectasis, acute atelectasis, and bronchial asthma, complicated in some cases by infectious bronchitis, were given aerosol therapy with trypsin. Results were excellent in 236 patients, good in 11, and unsatisfactory or nonexistent in 65. The patients received half-hour sessions of therapy morning and evening; relief was ordinarily obtained within two days, but some patients had to have as many as 20 sessions of therapy. It is possible to associate antibiotic therapy with this method, but no significant gain is made thereby. A bronchodilating agent is a useful adjunct; the authors used aleudrine (isoprenaline 1%). In the dose used (0.25 gm. a day), trypsin had no effect on blood coagulation. The presence of expectoration that must be liquefied is the indispensable indication for trypsin therapy. When this rule is followed, there are few side-effects of therapy. True tracheobronchial intolerance of the product is rarely encountered, and skin or mucosal reactions are easily controlled with antihistamines. Nebulization therapy should not be used on young infants. Trypsin in aerosol is an efficient therapy for pulmonary disorders in which there is hypersecretion.

Diphtheria Morbidity and Antitoxic Diphtheria Immunity with Regard to Anatoxin Vaccination. E. Tosi. Riv. clin. pediat. 55:166-189 (Feb.) 1955 (In Italian) [Florence, Italy].

An investigation was carried out to ascertain the causes of the high diphtheria morbidity in Italy despite the enforcement of a law making antidiphtheritic vaccination compulsory for all children in the 2nd year of life. A study of 1,100 children attending the Pisa public schools revealed that the disease attacked mainly children of the school age group (6 to 14 years) regardless of whether they had or had not received the vaccination in the 2nd year of life. It thus revealed that the vaccination carried out according to Italian laws on active prophylaxis against diphtheria does not protect the child of the school age group from the infection. A study of children who had been vaccinated indicated that the immunization conferred on the child by the first vaccination lasts for an average of one year and that children of the school age group are practically without any defense against the disease at a time in which the possibilities of contagion are greatest. The degree of vaccine immunization can be increased and the period of its duration prolonged up to the preschool age if, one year after the first vaccination, a new dose of vaccine (recall injection) is given. If immunization is tó be prolonged for the entire school period, it is necessary to give a second recall injection at the time the child enters school (6 years of age). The author advocates the passing of a law that will make compulsory the administration of recall injections, at least two of them, to children in 3rd and 6th year of life.

Prolonged Antibiotic Therapy of Pulmonary Tuberculosis with Isoniazid Associated with Streptomycin or *p*-Aminosalicylic Acid: Its Influence on Indications for Pneumothorax. P. Véran. Semaine hôp. Paris **31**:2354-2359 (July 2) 1955 (In French) [Paris, France].

A comparison is made of the results obtained over a 10 month period in two similar groups of patients with ulceronodular tuberculosis, one treated with isoniazid and streptomycin and the other with isoniazid and *p*-aminosalicylic acid. The first group numbered 87 patients at 2 months but dwindled to 51 at 10 months. The second group had 78 patients at 2 months and 50 at 10 months. Expectoration was more often dried up by isoniazid and streptomycin than by the other combination. The results were radiologically the same for both methods in regard to new lesions and regardless of the extent of the lesions. For old lesions, isoniazid and streptomycin had the advantage. Improvement frequently slowed or stopped at a period characteristically beginning in the fifth or sixth month of treatment. Bacteriologically, the percentage of sputum conversion was slightly higher with isoniazid and *p*-aminosalicylic acid. After a year, some patients still harbored tubercle bacilli, some of which were sensitive and others resistant to isoniazid and most of which were sensitive to streptomycin. The lesions usually remained stationary. Bacterial resistance to isoniazid developed belatedly but in the same manner for both groups. The failure of these associations to benefit cavitary tuberculosis is an excellent indication for pneumothorax, which should not be put off unduly.

Calamities from the Use of Cortisone in Unrecognized Tuberculosis. W. H. Oatway Jr. and G. A. Paulsen. Arizona Med. **12**:275-276 (July) 1955 [Phoenix, Ariz.].

Oatway and Paulsen emphasize that pulmonary tuberculosis can develop after the corticoid drugs have been given for conditions of the joints, skin, and lungs in persons considered (but not proved) to have normal lungs. The seven patients presented by them had received courses of steroid drugs in such a relationship to the onset of their tuberculosis that they can be presumed to have been an eliciting factor. Steroid therapy had been given for arthritis, rhizomelic spondylitis, dermatitis, asthma, and bursitis. In none of these patients had pulmonary tuberculosis been excluded by roentgenoscopy, although two of the patients had a history of earlier tuberculosis. Active tuberculosis was found in the weeks or months after cortisone and other steroid drugs had been used. The patients probably were infectious between the activation of their lesion and the diagnosis of tuberculosis. The authors suggest that the following precautions be taken in the use of cortisone, corticotropin, and other steroid drugs. 1. A pulmonary tuberculous lesion should be ruled out by x-ray examination of the chest. 2. If the x-ray film indicates an inactive lesion, and the use of corticoids proves necessary, chemotherapy for tuberculosis should be added as a precaution. 3. Chemotherapy for tuberculosis may be used if the tuberculin skin-test is positive and a family history of tuberculosis is present. The relative risk in using the steroids in the presence of a probably tuberculous lesion, or even of a positive skin-test, is not certain at present, but it would seem wise to minimize it by a protective blanket of antituberculous drugs. Experiments in animals have shown that tuberculosis is not aggravated and the animal may do well, if antituberculous drugs are used with the steroid drugs. The authors have used cortisone in tiny but effective doses for allergic skin lesions, severe herpes of the face, and similar conditions without harm to the tuberculous lung lesions undergoing chemotherapy.

Analysis of 177 Cases of Hypertensive Vascular Disease with Papilledema: One Hundred Twenty-Six Patients Treated with Rice Diet. B. Newborg and W. Kempner. Am. J. Med. **19**:33-47 (July) 1955 [New York].

In 177 patients with hypertensive vascular disease and papilledema who were admitted to the department of medicine of Duke University in Durham, N. C., between 1942 and 1953, an attempt was made to treat all of them with the rice diet. Follow-up in six patients was inadequate or the treatment period was too short for evaluation. In 33 patients with hypertensive neuroretinopathy treated with the rice diet, electrolyte imbalance developed within the first three months of the diet. Treatment with drastic salt restriction, therefore, could not be carried out, and additional sodium chloride or other chloride was given. In 31 of these 33 patients the total phenolsulfonphthalein excretion in two hours was below 36% indicating impaired renal function. All 33 patients died. Treatment with the rice diet in 18 patients was not carried out at any time; only one of these is still living. In 120 patients with hypertensive neuroretinopathy confirmed by eyeground photographs, treatment with the rice diet was carried out for 1 to 117 months; in 83 of these the total phenolsulfonphthalein excretion in two hours was below 55%; this includes 4 patients in the terminal stage of the disease, in whom the phenolsulfonphthalein excretion was not measured. Forty-seven (57%) of the 83 patients survived one year; 26 (31%) are still living four years and three months (average) after treatment was started. In 37 of the 120 patients the total phenolsulfonphthalein excretion was 56% or more in two hours; 34 (92%) of them survived one year; 26 (70%) are still living five years (average) after treatment was started. One hundred of the 120 patients were followed after the initial period of the treatment with the rice diet, and in these patients the relation of the length of time of supervised treatment to the survival time was studied. In 39 of these patients the period of supervised treatment was 2 to 12 months. Seven of the 39 died during this period while presumably still following the diet; only 3 of the 7 were following it correctly. Thirty-two of the 39 were treated for 2 to 12 months and then to a greater or lesser extent discontinued the treatment; only 6 (19%) of the 32 are still living. Eighteen of the 100 patients were treated for an average period of three years and then to a greater or lesser extent discontinued the treatment. Nine of these 18 patients are still living. The remaining 43 of the 100 patients were treated over one year with the rice diet and continued treatment. Thirty-seven (86%) of these are still living; of the 6 who died only 3 were following the diet correctly. In 92 of the 100 patients in whom the effect of the rice diet on retinopathy was studied with the aid of the available eyeground photographs, papilledema disappeared completely. The effects of the rice diet on blood pressure, serum cholesterol, blood nonprotein nitrogen, T_1 deflection in the electrocardiogram, cardiothoracic ratio, and renal function were studied in 61 patients who were reexamined at least one year after treatment had been started. A comparison of the findings before treatment, during the period of strictest adherence to the rice diet, and at the most recent examination showed that the strictest adherence to the rice diet produced the most favorable results. Dietary modifications, therefore, should be made gradually and with careful observations of blood pressure readings, blood chemical findings, electrocardiograms, chest roentgenograms, and eyeground photographs. Intensive dietary treatment should be started as early as possible and continued until all signs of the vascular disease have disappeared.

The Night-Eating Syndrome: A Pattern of Food Intake Among Certain Obese Patients. A. J. Stunkard, W. J. Grace and H. G. Wolff. Am. J. Med. **19**:78-86 (July) 1955 [New York].

Of 25 obese patients between the ages of 18 and 56 years who were observed at a special study clinic of the New York Hospital, the eating patterns of 20 formed a distinctive syndrome characterized by nocturnal hyperphagia, insomnia, and morning anorexia. Such a pattern was not found in any of 38 persons (graduate and student nurses) without history of weight disorder. This night-eating syndrome was particularly prominent during periods of weight gain and life stress. An effective reducing regimen was not possible in its presence, and it appeared to be intimately related to the pathogenesis of obesity. Of the 20 patients reporting the syndrome only 2 were able to lose more than one-third of their initial excess weight, and in the past only 11 had ever succeeded in losing more than one-third of their excess weight. In 8 of these 11 patients this weight loss was accompanied by disabling emotional illness; only 3 achieved this without disabling complications. Of the five patients not reporting the syndrome, four had carried out successful weight reduction programs in the past. The cases of 2 of the 20 patients are reported in detail, illustrating various aspects of the night-eating syndrome. In the first, that of a 43-year-old single woman, prolonged dietary restriction leading to a marked weight loss did not abolish the syndrome or prevent its intensification in a situation of life stress. In the second patient, a 29-year-old housewife, remission and exacerbation of the night-eating syndrome followed promptly on changes in her life situation and were associated with marked variation in the success of a dietary regimen. The cause of the night-eating syndrome has not been determined. Its characteristics do not reveal whether the mechanisms involved in its pathogenesis are primarily physiological or psychological. It is suggested that the syndrome represents a response to stress of a type peculiar to certain obese patients and that it is intimately related to the pathogenesis of their obesity.

Psittacosis (Ornithosis). O. Heggø and L. Kornstad. Tidsskr. norske lægefor. 75:414-415 (June 1) 1955 (In Norwegian) [Oslo, Norway].

The case of psittacosis (ornithosis) described in a man, aged 48, infected from a sick parakeet, is believed to be the first instance of psittacosis to be reported from Norway. Treatment with Terramycin early in the course was effective, but the dosage was too low and more especially the treatment was terminated too soon, so that there was recurrence. Tetracycline (Achromycin) treatment on hospitalization gave excellent results. A somewhat higher antibiotic dosage than that applied in the usual bacterial infections is recommended in psittacosis, and to prevent recurrence the treatment should be continued for several days after the fever has subsided. The diagnostic importance of the complement fixation test is emphasized.

Paroxysmal Nocturnal Hemoglobinuria. G. W. Dean. Wisconsin M. J. 54:335-339 (July) 1955 [Madison, Wis.].

The patient whose history is presented was a 60-year-old woman who was first hospitalized in 1952 because of recurrent bronchial asthma, which had bothered her at intervals since 1944. This responded to treatment but, in the course of her examination, she gave a history of anemia since the birth of her child in 1927 and of episodes of dark urine since 1940. In recent years these episodes had been accompanied by jaundice. On the basis of numerous laboratory studies a clinical diagnosis was made of paroxysmal nocturnal hemoglobinuria, which is a hemolytic anemia also known as the Marchiafava-Micheli syndrome. Its cause is unknown, but its basic defect is in the erythrocytes, which are hemolyzed by the patient's own serum as well as by the serum of a normal person. After leaving the hospital the patient continued to have severe attacks of paroxysmal nocturnal hemoglobinuria about every two months; these alternated with milder attacks. She could almost predict the appearance of the dark urine and would become apprehensive and discouraged. The hemoglobinuria always appeared after a period of sleep, day or night, and was usually preceded by indigestion. Some attacks were precipitated by an acute upper respiratory infection. On many of these occasions she was given transfusions of whole blood and of washed erythrocytes. There was no evidence of increased hemolysis after the transfusions. During one bout of paroxysmal nocturnal hemoglobinuria, the patient's blood was thoroughly studied. The results indicated that when the patient's red blood cells were treated with trypsin, they were susceptible to hemolysis by at least one factor present in normal serum as well as acidified serum, thus proving the diagnosis of paroxysmal nocturnal hemoglobinuria. In January, 1955, during another attack of upper respiratory infection, her condition deteriorated rapidly and she became deeply jaundiced and pallid. In spite of intensive treatment, she died. Autopsy revealed a mucopurulent tracheobronchitis, obstructive pulmonary emphysema, bronchiectasis, atelectasis of the middle lobe, cor pulmonale, chronic rheumatic valvulitis, cardiac cirrhosis of the liver, hemoglobinuric tubular nephropathy, and uterine leiomyofibromas. Once the hemolytic nature of an anemia has been recognized, steps must be taken to determine whether it is of the intrinsic type, in which there is an intracorpuscular defect, or whether it is of extrinsic type, in which hemolysis is caused by extracorpuscular agents such as chemicals, drugs, animal or vegetable poisons, infectious agents, isoagglutinins, or hemolytic immune bodies. The treatment of paroxysmal nocturnal hemoglobinuria is unsatisfactory; no cures have been reported.

Clinical Features of Porphyria. R. Pimenta de Mello. Hospital 47:583-588 (May) 1955 (In Portuguese) [Rio de Janeiro, Brazil].

According to a purely clinical classification, porphyria may be classed as either congenital or intermittent acute. The disease is hereditary. Congenital porphyria renders the patient extremely sensitive to light. The disease starts with the appearance of blisters after exposure of the patient to light, followed sometimes by development of intractable urticaria. As the disease progresses, mutilation of the hands and parts of the face may occur. The urine of the patients is as red as wine. The intermittent acute form includes the (1) latent, (2) nervous, (3) abdominal, and (4) typical types of the disease. The latent type runs without clinical symptoms, but the patients eliminate uroporphyrin and coproporphyrin. The nervous type runs with paralysis and without abdominal symptoms, whereas the abdominal type is characterized by abdominal disorders without paralysis. The typical type presents both paralysis and abdominal disorders. The clinical diagnosis of intermittent acute porphyria is difficult, as the disease frequently simulates poliomyelitis, Landry's paralysis, progressive muscular atrophy, psychoses, and endocrinopathies. Employing an anatomicoclinical classification, one can class the disease as developing in the erythropoietic organs or in the liver. Erythropoietic porphyria is congenital and of the photosensitive type. Frequently it is associated with hemolytic anemia and splenomegaly. Anemia may improve after splenectomy. The hepatic form includes the nervous and abdominal intermittent acute type and the mixed type with late appearance of photosensitivity and either or both nervous and abdominal disorders. Independently of definite forms of porphyria, there are several intoxications, diseases, or conditions that cause secondary coproporphyrinuria, increased elimination of protoporphyrin and deuteroporphyrin, or presence of certain porphyrins in blood, tissue, or feces. The most frequent causal factors of either elimination or retention of porphyrins are intoxication with heavy metals; infections; rheumatic fever; pemphigus foliaceus; severe injury to the liver by certain diseases or by the use of barbituric derivatives or sulfonamide drugs; and intestinal hemorrhage. Chloroma tumors and necrotic tissues are almost entirely made up of protoporphyrin.

SURGERY

Re-Operation for Mitral Valve Disease. I. D. Baronofsky, C. Borden, R. E. Smith and J. L. Sprafka. Ann. Surg. 142:32-36 (July) 1955 [Philadelphia].

Of five patients with mitral valvular disease in whom second mitral valvuloplastic procedures were undertaken, three were women 43 years of age and two were men aged 29 and 45 years respectively. They represented three types of patients with mitral valvular disease in whom reoperation was done. The first type was represented by a patient in whom previous exploratory cardiotomy had been undertaken in order to perform a mitral valvulotomy, which, however, was omitted because of the presence of significant regurgitation with little stenosis. In this patient, the electrocardiogram showed the presence of a 90 degree electrical axis toward the right as two years passed, suggesting stenosis of the mitral valve. This was verified at reoperation. A second patient with this type of disease is reported on. It is possible that patients with severe regurgitation for whom nothing was done at the initial operation may require surgical treatment at a later date for definite stenosis. With this in mind the authors continually observe patients in whom the diagnosis of mitral regurgitation has been made for evidence of changes in the electrocardiograms, roentgenograms, or murmurs, which suggest changing lesions. If such evidence is present, exploratory cardiotomy is carried out. The second type was represented by a patient with mitral valvular disease in whom the presence of a large thrombus in the left auricle had prevented the fracture of the valve at the first operation. At the second operation on this patient, the surgeon's finger was inserted alongside the thrombus, which was well fixed to the atrial wall; an uneventful mitral valvulotomy was performed through the thrombus. Of the two remaining patients, one underwent fracture of the mitral valve after a finger dilatation had been carried out at the first operation. The fifth patient was one in whom an early attempt at the relief of mitral stenosis by one of the pioneers in the field had been made by removing a 1 cm. piece of valve. The patient improved after the operation, with a gradual reappearance of symptoms later. An excellent fracture of the anterior-lateral commissure was obtained at the second operation, increasing the size of the orifice to at least 3 to 4 cm. The last two patients presented cases of the third type, i. e., of the possible recurrence of mitral stenosis. It is suggested that reoperation in patients with an initial exploratory cardiotomy is perfectly feasible and should be attempted when warranted by the condition of the patient or by the subsequent laboratory or clinical findings.

Arterialization of the Coronary Sinus for the Revascularization of the Heart in Coronary Artery Disease: Mortality Study Following Circumflex Coronary Artery Ligation. A. A. Bakst, J. Costas-Durieux and C. P. Bailey. J. Thoracic Surg. 30:57-65 (July) 1955 [St. Louis].

The technique of arterialization that Bakst and associates used on dogs was conceived and developed by others. It consists of a two-stage operation. At the first stage, through a left-sided thoracic incision, a free segment of external jugular vein is used to anastomose the aorta to the coronary sinus. Three to six weeks later, through a right-sided approach, the coronary sinus is partially ligated over a probe to 2 to 3 mm. Subsequently, the animals are used for physiological experiments. In an effort to study the pathological effects on the myocardial venous bed of elevating the pressure within the coronary sinus by arterialization, all the animals were killed after the physiological data were obtained. For the purposes of this comparative mortality report, those animals living for four hours after the ligation of the circumflex coronary artery were classified as survivals. The circumflex coronary artery was ligated in normal dogs, with a 90% six hour mortality rate and an eventual 100% mortality rate. Ligation of the circumflex coronary artery in dogs that have had previous miscellaneous cardiac surgery resulted in a 66% mortality rate. The 33% survival rate was not apparently related to either coronary sinus pressure or the amount of retrograde blood flow from the distal cut end of the ligated coronary artery. Ligation of the left anterior descending artery in similar dogs resulted in a 60% mortality rate. Two survivors demonstrated an accessory left anterior descending artery arising from the circumflex coronary artery. This accessory vessel probably accounted for an increase in the intercoronary arterial anastomotic flow that was adequate to protect the heart against ventricular fibrillation. Ligation of the circumflex branch of the left coronary artery in animals in which the coronary sinus was arterialized for one to two months resulted in a 20% mortality. It is of interest that in two dogs that died the heart beat well for one and two hours, respectively, after circumflex artery ligation. Ventricular fibrillation ensued in both animals within five minutes of occlusion of the graft. The authors were originally impressed by the protection afforded by the anastomosis of the aorta to the coronary sinus. Ligation of the circumflex branch of the left coronary artery in animals in which the coronary sinus had been arterialized for six months produced a 66% mortality. In this group, it was impossible to demonstrate any significant protection against ventricular fibrillation afforded by arterialization of the coronary sinus. This loss of protection was accompanied by a loss of retroperfusion of the myocardium, which was explained by a marked intimal proliferation and thrombosis within the major venous tributaries of the coronary sinus.

Late Results of Cardioangiological Interventions. L. Grossi. Minerva cardioangiol. 3:203-206 (May) 1955 (In Italian) [Turin, Italy].

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Fretheim examined the hemoglobin percentage, the total emoglobin, the blood volume, the red blood cell volume, and he plasma volume and also examined the serum protein concentration and the total circulating serum protein preoperatively nd postoperatively in patients with gastric carcinoma. These atients generally have a considerable reduction of hemoglobin ercentage, total hemoglobin, and red blood cell volume, as well s a moderate reduction of blood volume. The serum protein concentration is distinctly reduced, but, owing to slight or no reduction of plasma volume, the total circulating serum protein is only slightly reduced. To bring the patients up to normal values preoperatively, considerably more blood has to be supplied than can be calculated from the values found, because a large portion of the red blood cells given are hemolyzed and relatively still greater amounts of serum protein and fluid leave the blood stream again. Postoperatively, the values are again thrown out of balance. The loss of blood during gastrectomy and the following 24 hours is considerably greater than that measured by the weighing of compress blood, usually several times greater. The hemoglobin percentage and the serum protein concentration are poor guides to the amount of blood lost, as they reach the lowest value two days or several days after the loss of blood. The best guide is provided by measurement of the total hemoglobin and the red blood cell volume. The serum protein and the plasma volume are more mobile: they pass more easily back and forth between blood vessels and tissues, giving a less reliable picture of the loss of blood.

Two Hundred Cases of Exeresis for Pulmonary Tuberculosis. E. Cornet, M. Dupont and Fertil. Semaine hôp. Paris **31:**2360-2364 (July 2) 1955 (In French) [Paris, France].

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Gastric Carcinoma Treated with Abdominothoracic Total Gastrectomy. B. Fretheim. A. M. A. Arch. Surg. **71:**24-32 (July) 1955 [Chicago].

The author reviews observations on 178 patients with gastric carcinoma who were subjected to total gastrectomy by the abdominothoracic approach. The series included 46 women and 132 men. There were 31 operative deaths (17.4%); in 11 of these patients death was due to infection in the operative field. Other surgical fatalities were caused by pneumonia, lung emboli, shock, cardiovascular complications, incarceration of the jejunal loop, intraperitoneal hemorrhage, and acute pancreatic necrosis. Extensive metastases caused death in three patients three or four weeks after operation. Nonfatal postoperative complications included thromboemboli, sutural insufficiency, and subphrenic abscess. More than half of the patients subjected to total gastrectomy died within one year after the gastrectomy; one-sixth survived three years; and only one in nine patients survived more than five years. The patients who died within one year after total gastrectomy generally had severe complaints in the form of anorexia, nausea, and vomiting. Their weight did not increase, they were unfit to work and generally had considerable pain. Therefore, in these patients the operation was not really indicated. The majority of patients who survived more than one year were so comfortable that the intervention must be regarded as having been justified. Total gastrectomy for gastric carcinoma is recommended in all cases in which the neoplasm has spread to such an extent that it is not possible to resect the stomach 5 cm. to both sides from the site of the carcinoma and in which radical surgery is possible. In carcinoma of the type of muciparous scirrhus, the macroscopical delimitation is difficult and the indication for total gastrectomy consequently greater. Total gastrectomy should not be resorted to as a palliative measure. A combined abdominothoracic incision permits better access and, thereby, a greater possibility of radical block dissection than an abdominal or thoracic incision. The operative mortality and the postoperative complications are so much higher in total gastrectomy than in subtotal resection, and the postoperative complaints, digestive disturbances, and reduced general condition and capacity for work are so much greater that subtotal gastrectomy is preferable when it can be carried out according to radical principles.

by a patient with mitral valvular disease in whom the presence of a large thrombus in the left auricle had prevented the fracture of the valve at the first operation. At the second operation on this patient, the surgeon's finger was inserted alongside the thrombus, which was well fixed to the atrial wall; an uneventful mitral valvulotomy was performed through the thrombus. Of the two remaining patients, one underwent fracture of the mitral valve after a finger dilatation had been carried out at the first operation. The fifth patient was one in whom an early attempt at the relief of mitral stenosis by one of the pioneers in the field had been made by removing a 1 cm. piece of valve. The patient improved after the operation, with a gradual reappearance of symptoms later. An excellent fracture of the anterior-lateral commissure was obtained at the second operation, increasing the size of the orifice to at least 3 to 4 cm. The last two patients presented cases of the third type, i. e., of the possible recurrence of mitral stenosis. It is suggested that reoperation in patients with an initial exploratory cardiotomy is perfectly feasible and should be attempted when warranted by the condition of the patient or by the subsequent laboratory or clinical findings.

Arterialization of the Coronary Sinus for the Revascularization of the Heart in Coronary Artery Disease: Mortality Study Following Circumflex Coronary Artery Ligation. A. A. Bakst, J. Costas-Durieux and C. P. Bailey. J. Thoracic Surg. 30:57-65 (July) 1955 [St. Louis].

The technique of arterialization that Bakst and associates used on dogs was conceived and developed by others. It consists of a two-stage operation. At the first stage, through a left-sided thoracic incision, a free segment of external jugular vein is used to anastomose the aorta to the coronary sinus. Three to six weeks later, through a right-sided approach, the coronary sinus is partially ligated over a probe to 2 to 3 mm. Subsequently, the animals are used for physiological experiments. In an effort to study the pathological effects on the myocardial venous bed of elevating the pressure within the coronary sinus by arterialization, all the animals were killed after the physiological data were obtained. For the purposes of this comparative mortality report, those animals living for four hours after the ligation of the circumflex coronary artery were classified as survivals. The circumflex coronary artery was ligated in normal dogs, with a 90% six hour mortality rate and an eventual 100% mortality rate. Ligation of the circumflex coronary artery in dogs that have had previous miscellaneous cardiac surgery resulted in a 66% mortality rate. The 33% survival rate was not apparently related to either coronary sinus pressure or the amount of retrograde blood flow from the distal cut end of the ligated coronary artery. Ligation of the left anterior descending artery in similar dogs resulted in a 60% mortality rate. Two survivors demonstrated an accessory left anterior descending artery arising from the circumflex coronary artery. This accessory vessel probably accounted for an increase in the intercoronary arterial anastomotic flow that was adequate to protect the heart against ventricular fibrillation. Ligation of the circumflex branch of the left coronary artery in animals in which the coronary sinus was arterialized for one to two months resulted in a 20% mortality. It is of interest that in two dogs that died the heart beat well for one and two hours, respectively, after circumflex artery ligation. Ventricular fibrillation ensued in both animals within five minutes of occlusion of the graft. The authors were originally impressed by the protection afforded by the anastomosis of the aorta to the coronary sinus. Ligation of the circumflex branch of the left coronary artery in animals in which the coronary sinus had been arterialized for six months produced a 66% mortality. In this group, *it was impossible to demonstrate any* significant protection against ventricular fibrillation afforded by arterialization of the coronary sinus. This loss of protection was accompanied by a loss of retroperfusion of the myocardium, which was explained by a marked intimal proliferation and thrombosis within the major venous tributaries of the coronary

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Surgical Aspects of Splenic Disease. W. H. Cole, J. D. Majarakis and L. R. Limarzi. A. M. A. Arch. Surg. 71:33-46 (July) 1955 [Chicago].

Cole and co-workers discuss observations on 137 patients in whom splenectomy was performed. Although it has been known for years that splenectomy yields very good results in familial hemolytic anemia and thrombocytopenic purpura, it has not been until the past few years that the authors have learned that good results are often obtained in acquired hemolytic anemia and secondary purpura. The indications for operation in these latter two diseases are not well defined, although the presence of some phase of hypersplenism represents the clearest indication. Accordingly, much more experience is needed in these diseases having borderline indications. In the reviewed series of 137 patients undergoing splenectomy for splenic disease, 54 had hemolytic anemia. Of this group, 40 were classified as hereditary and 14 as acquired. The important differentiating feature in these two groups is the fact that in the former there is an increased mechanical and osmotic fragility of the red blood cells, whereas in the latter the red blood cell fragility is normal. Splenectomy yielded good results in all except one of these patients with hereditary anemia. In the acquired group (in which Evans and associates have found autoantibodies, agglutinins, or hemolysins) the authors performed splenectomy on eight patients but obtained good results in only three. Splenectomy was done in 41 patients with thrombocytopenic purpura. Good results were obtained in 31 of 35 classified as idiopathic; in 6 cases classified as secondary purpura, results were good in only 3. The 35 patients who were classified as having hypersplenic states included those with primary splenic neutropenia and pancytopenia, Banti's syndrome, and Felty's syndrome. The authors obtained good results in all of the first group. For the past several years they have not performed splenectomy (one exception) in Banti's syndrome unless a portacaval or splenorenal shunt was performed at the same time. Results of the shunt operations are not included in this series. They have been able to follow all of their 22 patients having splenectomy for Banti's syndrome. There were five operative deaths in this group (22.7%); this is a higher rate than in any other group. Four of the five operative deaths were due to postoperative hemorrhage. Eight of the 17 patients surviving operation have died since leaving the hospital, 7 of hemorrhage from esophageal varices. Good results were obtained in four of eight patients with Felty's syndrome. The authors performed splenectomy for Gaucher's disease in only one patient; she is alive and well six years after splenectomy. The mortality rate in the entire series was 7.3%. It is significant that the mortality rate was lowest in the groups (hereditary hemolytic anemia and idiopathic thrombocytopenic purpura) having the best symptomatic results after splenectomy.

Total Right Hepatic Lobectomy for Cancer of the Gallbladder: Report of Three Cases. G. T. Pack, T. R. Miller and R. D. Brasfield. Ann. Surg. **142**:6-16 (July) 1955 [Philadelphia].

Since the prospect for cure of all patients with gallbladder cancer is seldom greater than 2 to 3% and since there has been only one five-year cure of gallbladder cancer achieved by cholecystectomy in the history of the Memorial Cancer Center in New York, the authors feel justified in suggesting that a total right hepatic lobectomy should be considered as the primary initial method of treatment for this condition. The more adequate exposure afforded by a right thoracoabdominal incision has made this operation safer and easier to perform. The technique of total right hepatic lobectomy is described in detail. Two of the three patients reported on, a 64-year-old woman and a 53-year-old woman, had undergone previous surgical treatment for cancer of the gallbladder that made total right hepatic lobectomies difficult (one having undergone simple cholecystectomy and intensive postoperative irradiation). Two of the three patients, the 64-year-old woman and a 65-year-old man, had extensive metastases to periportal, hepatoduodenal, and retroduodenal lymph nodes, which made the dissections arduous and the prognosis unfavorable. The older of the two female patients survived total right hepatic lobectomy for five and a half months. She received immediate postoperative high caloric and high protein feedings, which the authors consider an essential protection and necessary aid for the small remaining liver substance in the left lobe. The remarkable ability of the liver to regenerate was shown in this patient on autopsy, since the residual left hepatic lobe that contained no metastatic cancer had undergone regenerative hyperplasia so that its ultimate weight was almost 500 gm. In the male patient the technical difficulties were great because of the huge conglomerate lymph nodes obscuring the portal fissure. Because of ileus this patient did not receive immediate postoperative high caloric and protein feedings; he died on the seventh postoperative day. The left lobe of the liver weighing 400 gm. was estimated to be 50% larger than at the termination of the operation. The 53-year-old woman received a replacement of 3,500 cc. of blood. The postoperative course was uneventful. Oral feedings were started on the fifth postoperative day, and because of anorexia, cortisone was subsequently added in doses of 100 mg. daily. Convalescence thereafter was rapid. The remaining 20% of the liver resident in the left lobe was adequate and the patient's hepatic function has remained well within normal limits. The longest survival after right total hepatic lobectomy observed by the authors is for two years; this male patient, now weighing 90.7 kg. (200 lb.) and working, had a huge granuloma involving the entire right lobe.

Capillary Hemangiomas of the Skin. J. J. Modlin. Surgery 38:169-180 (July) 1955 [St. Louis].

Between 1947 and 1954, 29 girls and 13 boys with 52 capillary hemangiomas were examined and followed at regular intervals. Twenty-nine patients were followed for three or more years. Although 44 hemangiomas were noted within one week after the child was born and despite the fact that in 48 hemangiomas a history of rapid growth was obtained, only two children were brought for examination before the age of 2 months. With the exception of one 6-year-old boy, all the children were less than two years old at the time of their initial examination, and no capillary hemangiomas were noted in adults. Two patients, each of whom had one capillary hemangioma, were lost to follow-up. Of the remaining 50 capillary hemangiomas, 39 did not receive any treatment and 11 were surgically excised. Twenty-four of the 39 had completely disappeared at 1 to 4 years of age of the patient, and 14 were showing definite and continuing regression at the time of the author's report. In none of the 42 patients was there serious hemorrhage or threat to life, and there was no case of the so-called metastasizing hemangioma or other evidence of malignant tumor of vascular origin. It is emphasized that ideal treatment of infantile capillary hemangiomas consists of destruction or surgical excision early in life before the characteristic rapid growth occurs. The fact remains, however, that many lesions will be seen after enlargement has occurred, and it appears that these may be followed closely without treatment. It is probable that judicious restraint may produce a much better end-result than that obtained by well-meant but vigorously applied destructive methods of treatment. There is need for additional reports of conservatively managed cases in order to determine the true natural history of these lesions.

Chronic Appendicitis. H. W. Gallagher and A. E. M. Stevenson. Ulster M. J. 24:52-57 (May) 1955 [Belfast, Ireland].

A review of the literature indicates that authorities are not in agreement about the entity chronic appendicitis. The authors reviewed 400 consecutive patients who had been operated on for appendicitis in an attempt to clarify their own ideas about chronic appendicitis. All patients were operated on in Banbridge Hospital during a three and a half year period, beginning in mid-December, 1946. An attempt was made to trace all surviving patients after an interval of at least one year from the time of operation. Two hundred forty-one patients were interviewed and reexamined. Seventy-five others replied to a questionnaire. The patient's general practitioner sent a report in a further 51 cases. There were three postoperative deaths, and 30 patients could not be traced. A follow-up inquiry was made about the occurrence of chronic or recurrent abdominal symptoms before and after the operation. Of the 367 patients who were followed up, 222 had persistent or recurrent abdominal symptoms before the illness for which appendectomy was performed. Patients with recurrent abdominal symptoms fell into one of four groups, which can best be described as recurrent appendicitis (46 cases), recurrent abdominal colic (45 cases), recurrent or persistent right-sided pain (94 cases), and dyspepsia (37 cases). The authors stress the following points: 1. Recurrent appendicitis is a well-recognized condition and should not be referred to as chronic appendicitis. 2. Recurrent or persistent right-sided pain is undoubtedly due, in many instances, to lesions of the appendix and not infrequently precedes acute appendicitis in which the symptoms may remain right-sided. In some cases, removal of a normal appendix cures the patient, and it is suggested that cure may, at times, be psychological rather than physical. The term chronic appendicitis should be applied to cases of right-sided pain for which no other cause is found. 3. Recurrent abdominal colic frequently precedes an attack of acute or subacute obstructive appendicitis. Only rarely can the cause of the colic be diagnosed before the onset of localizing symptoms or signs. The authors feel that the term "chronic appendicitis—recurrent colic" could be used for this type of case. 4. Dyspepsia alone may precede an attack of appendicitis and sometimes follows an attack of appendicitis treated conservatively. Appendectomy should never be advised for dyspepsia unless there is other evidence that the appendix is abnormal. These cases could be termed "chronic appendicitis—reflex dyspepsia."

NEUROLOGY & PSYCHIATRY

Behavior of Chimpanzee-Avirulent Poliomyelitis Viruses in Experimentally Infected Human Volunteers. A. B. Sabin. Am. J. M. Sc. 230:1-8 (July) 1955 [Philadelphia].

Poliomyelitis is generally more severe in adults than in very young children. Immunization procedures should avoid creating a large adult population without resistance to paralytic poliomyelitis. Natural inapparent infection in childhood is the process by which the vast majority of the world population acquires immunity to poliomyelitis. Sabin attempted to determine by quantitative methods the comparative behavior in human beings of the same culture fluids that had been studied in monkeys and chimpanzees. Strains of each of three types of poliomyelitis virus, which were segregated in monkey kidney tissue culture and shown to be avirulent for monkeys by intracerebral and extraneural routes and for chimpanzees even after inoculation into the gray matter of the spinal cord, were administered to 30 human volunteers. These men were 21 to 30 years old and possessed no demonstrable antibody for the poliomyelitis viruses they received. Twenty-six men received types 1, 2, or 3 virus in doses varying from 0.001 cc. to 1 cc. in a teaspoonful of milk by mouth. The others who were without antibody for all 3 types received the type 3 virus intramuscularly. There was no virus multiplication in the mouth or anterior portion of the tongue. With the larger doses the viruses multiplied in the throat as well as in the lower alimentary tract, while after ingestion of the smaller doses no virus was found in the throat even when it continued to be excreted in the feces for four to six weeks. The smallest amount, 0.001 cc., containing approximately 10,000 tissue culture doses of virus, initiated an immunogenic alimentary infection in all human volunteers. This indicated that the human alimentary tract is more readily infected than that of chimpanzees, and chimpanzees are more readily infected by mouth than monkeys, while the reverse obtains for the nervous system, monkeys being much more susceptible than chimpanzees. No viremia was found in any of the volunteers, and there was no evidence of illness. Amounts of type 3 virus that readily produced infection after ingestion failed to do so after intramuscular injection except in one man, in whom the virus localized in the lower alimentary tract. The antibody response, which occurred in varying degree in different men, was of a higher order in those with extensive viral multiplication in the throat. No harmful mutants were found after multiplication in the alimentary tract. Similar studies are now in progress with naturally occurring, intracerebrally-avirulent types 1, 2, and 3 poliomyelitis viruses that were recovered from healthy children who had no contact with clinical cases of poliomyelitis. Studies on immunization of larger numbers of human beings are being postponed until comparative studies have indicated the best attenuated strains to use for this purpose.

Poliomyelitis and Tonsillectomy: A Report of the Medical Research Council Committee on Inoculation Procedures and Neurological Lesions. Lancet 2:5-10 (July 2) 1955 [London, England].

The first part of this report is concerned with recent tonsillectomy in its relationship to poliomyelitis. Between March, 1951, and December, 1953, reports were received by the Medical Research Council in Britain of 103 children up to 18 years of age in whom poliomyelitis developed within 91 days after tonsillectomy. Sixty-one (59%) had symptoms from 1 to 21 days after tonsillectomy. The concentration was most evident in the bulbar and bulbospinal groups where 44 (79%) occurred from 1 to 21 days after operation, compared with 38% of the spinal cases and 31% of the nonparalytic cases. Most cases occurred in the principal epidemic period, but the same pattern was seen in epidemic and nonepidemic seasons. Tonsillectomy as practiced at present added relatively few to the total number of cases of poliomyelitis reported during the study, but tonsillectomy should continue to be restricted in any area where the disease is unusually prevalent. The inquiry into the relationship between poliomyelitis and more remote tonsillectomy revealed that between mid-1951 and November, 1953, records were obtained in selected areas of England and Wales of the history of tonsillectomy at any time before the onset of paralytic poliomyelitis in 51 patients under 5 years of age and 203 patients 5 to 15 years of age. Histories were similarly obtained for the same number of matched controls. Only 2 of the patients and none of the controls under 5 years of age had had their tonsils removed. In the 5 to 15 year age group, 72 (35%) of the patients had undergone tonsillectomy compared with 44 (22%) of the controls. The differences between patients and controls were greatest in the group with bulbar paralysis, intermediate in the group with bulbospinal paralysis, and least in the group with spinal paralysis. In the bulbar and bulbospinal groups, most patients had had their tonsils removed at least one year and often five or more years before the onset of poliomyelitis. The results indicated that persons whose tonsils had been removed were more likely to develop the bulbar form of poliomyelitis than those who had not had the operation, even if years had elapsed between the removal of the tonsils and the onset of poliomyelitis.

Acute Anterior Poliomyelitis and Twinning: Clinical Considerations on Two Pairs of Twins. G. Dadone. Minerva nipiol. 5:44-49 (March-April) 1955 (In Italian) [Turin, Italy].

Acute anterior poliomyelitis occurred on the same day in a brother and sister who were three-year-old dizygotic twins. In both patients the same groups of muscles were involved by the paralysis in the same extremities, suggesting not only a specific constitutional tendency to become ill but also a sensitivity that seemed to be specific for a particular area. The onset of acute anterior poliomyelitis on the same day was also observed in four-year-old dizygotic twin brothers in whom the paralysis did not affect the same groups of muscles. Both pairs of twins had received prophylactic vaccinations against diphtheria and smallpox three months and one month, respectively, before the onset of poliomyelitis. Many workers have reported a relationship between inoculations of prophylactic vaccines and the onset of poliomyelitis after the latter was observed to arise in the extremity in which the injections had been given. This was not, however, the case with these two sets of twins. It is advisable not to vaccinate persons during an epidemic of poliomyelitis in order to avoid the possibility of favoring the onset of the disease. Dadone states that there is a constitutional tendency to contract poliomyelitis. In these patients there was almost a chronological identity in the onset of the disease. He suggests that, whenever poliomyelitis develops in one member of a set of twins, prophylactic measures be taken for the other member.

Behavior of Chlorine in Treated Tuberculous Meningitis: Its Prognostic Value. C. Marini and M. P. Prodi. Clin. pediat. 37:369-377 (May) 1955 (In Italian) [Bologna, Italy].

Children with tuberculous meningitis were studied to determine whether there is a relationship between the chlorine values of patients with this condition and its clinical course. The chlorine in the cerebrospinal fluid, blood, and 24-hour urine specimen was determined at the time of admission, every eight days during the severest course of the disease, and less often thereafter until the clinical findings and cerebrospinal fluid returned to normal. The results indicated that a progressive diminution of chlorine in the cerebrospinal fluid and the blood together with a heavy renal loss of it is generally present in patients in whom the outcome will be fatal. If however the patient's body retains chlorine by decreasing the urinary excretion of it and maintaining a normal blood level of it, the prognosis can be favorable, even if the initial condition was clinically severe. The study proved that the determination of the ratio between chloremia and chloruria is, in addition to that of the cerebrospinal fluid level, a valuable prognostic tool. While the latter reveals the severity of the local alterations, the former indicates the reactive capacity of the patient and his possibilities of responding favorably to treatment. The chloremia-chloruria ratio is more important and more useful than the chlorine cerebrospinal fluid value and it can give useful therapeutic indications. In fact, patients with tuberculous meningitis whose renal excretion of chlorine is marked, despite low blood levels of it, can be given orally or parenterally large doses of sodium chloride and its retention in the organism can be facilitated by administering desoxycorticosterone acetate (DCA), corticotropin (ACTH), or cortisone. This combination is suggested on the basis of the hypothesis that a state of hypercorticalism can favorably influence the degree of resistance of the patient to the tuberculous infection.

Analysis of 200 Patients with Closed Trauma of the Skull. A. Verjaal. Nederl. tijdschr. geneesk. 99:1799-1806 (June 18) 1955 (In Dutch) [Haarlem, Netherlands].

The cerebrospinal fluid of 200 unselected patients admitted to a general hospital with closed trauma of the skull was examined within 24 hours of the trauma whenever possible, and an electroencephalogram was made within a week of the accident. The cerebrospinal fluid of most of the patients who seemed to have an uncomplicated concussion of the brain contained blood, and the electroencephalogram showed considerable irregularities. The author feels that, in view of the histological condition, cerebral contusion would be a more appropriate diagnosis in these patients than concussion of the brain. Unless there were definite contraindications, all these patients were permitted to move about as much as they wanted. Patients with uncomplicated concussion of the brain were permitted free movement after a few days. The results of this active treatment seemed favorable.

Canicola Fever with Neurological Complications. J. E. Middleton. Brit. M. J. 2:25-26 (July 2) 1955 [London, England].

The patient with canicola fever whose case is described was a man, aged 42, who had been well until eight days previously when he noticed a tightness in the chest that was increased by deep breathing. Two days later a severe retro-orbital headache with photophobia developed, and these symptoms persisted. A week before he became ill he had purchased a puppy. The animal had discharging eyes and later developed frequency of micturition and weakness of the hind legs. When the patient was hospitalized on the ninth day of his illness, both conjunctivae were injected and there was a scanty morbilliform rash on his body. On the 10th day his condition was unchanged except that he had loose watery stools. He was given chlortetracycline, 1 gm. orally every six hours, together with vitamin B complex. On the 12th day his diarrhea and other symptoms had subsided, and the meningism, rash, and conjunctivitis had almost gone. His temperature was normal. The chlortetracycline was reduced to 0.5 gm. every six hours. He was discharged as well on the 23rd day. Absorption tests showed evidence of infection with Leptospira canicola. Convalescence was complicated by a cervical radiculitis. The right serratus anterior and right diaphragm were paralyzed, and there was transient paresis of the left thumb. Initial subjective sensory changes over the left forearm were also present. Recovery was complete 18 months after the onset of the illness. The neurological signs and symptoms in this case pointed to bilateral patchy involvement of either the cervical segments of the spinal cord or its roots or nerves, and the clinical picture resembled very closely the shoulder-girdle syndrome or neuralgic amyotrophy described by Parsonage and Aldren Turner in 1948. The author presumes that infection with Lept. canicola gave rise to an antigen-antibody reaction that presented as the shoulder-girdle syndrome. Agglutination tests on the animal's blood likewise indicated infection with Lept. canicola, but none of its other human contacts showed signs of canicola fever.

GYNECOLOGY & OBSTETRICS

Use of Hypotensive Agents in Treatment of Preeclamptic Toxemia of Pregnancy. R. R. de Alvarez. Obst. & Gynec. 6:55-62 (July) 1955 [New York].

Since the renal hemodynamics seen in the hypertensive states of pregnancy seem to be intimately associated with vasoconstriction, the antihypertensive agents selected for study by de Alvarez were those designed to reduce renal resistance to blood flow. Twenty-one patients in whom eclamptic toxemia developed during pregnancy were selected for study; in 15, preeclampsia developed in the absence of underlying disease; and the remaining 6 had essential hypertension upon which various degrees of preeclampsia were superimposed. All patients were hospitalized, and studies were begun on the renal hemodynamics after complete bed rest for 24 hours. Three hypotensive agents were studied, all of which were given intravenously. Fourteen patients were studied following the use of protoveratrine, a Veratrum viride preparation. Nine of these patients had preeclamptic toxemia alone, while the remaining five had preeclampsia superimposed upon benign essential hypertension. Four patients were given hydralazine (Apresoline) hydrochloride. The remaining three patients were treated with Serpasil (Rauwolfia serpentina). This last drug produced the fewest side-reactions; however, its use results in increased renal blood flow similar to the effect of hydralazine hydrochloride. The marked tachycardia or precipitous drops in pressure noted with Apresoline are not present following the administration of Rauwolfia preparations. Hypotensive drugs should supplement rather than replace good medical and obstetric therapy in pregnancy toxemia.

Adenocarcinoma of the Endometrium: An Evaluation of Factors Influencing Prognosis and an Outline of a Plan of Therapy Based on These Factors. G. A. Webb, A. J. Margolis and H. F. Traut. West. J. Surg. 63:407-419 (July) 1955 [Portland, Ore.].

Adenocarcinoma of the endometrium has long been relegated to a position of lesser importance in comparison with cervical malignancies, mostly because of the generally accepted view that the prognosis of adenocarcinoma of the endometrium is excellent in relation to the prognosis of squamous cell carcinoma of the cervix. The ratio of instances of adenocarcinoma of the endometrium to squamous cell carcinoma of the cervix has changed from 1:6 to 1:3 in the past two decades. One reason for this increase in fundal carcinoma may be the increasing longevity of the population, and it is also interesting to speculate whether perhaps the use of estrogens by growing numbers of the aging female population might be partly responsible for this increase. This paper reviews the patients with a diagnosis of adenocarcinoma of the endometrium seen in the University of California Hospital or its Outpatient Clinic during the years from 1915 through 1948. Cases not confirmed by histological examination as well as those of metastatic carcinoma of the uterus were excluded. There were 261 authenticated cases. Jan. 1, 1949, was set as the cut-off date, so that the five year period of survival could be estimated in all patients. Two patients were lost to follow-up and two others died, so that there remain 257 patients. The five year survival in this group was 51%. The percentage of five year survival in adenocarcinoma of the endometrium has remained stationary for the last 25 years, whereas during the same period the five year survival rate from cervical carcinoma has increased threefold. Factors influencing the prognosis of adenocarcinoma of the endometrium are discussed. A plan of therapy employing surgery and irradiation (x-rays and radium) is suggested. The preoperative diagnosis should be made (1) by examination under anesthesia and (2) by differential curettage. The choice of treatment should then be determined by the size of the uterus, the invasiveness and type of the tumor, the presence of metastases, and also the patient's general condition.

Thrombosis and Embolism After Extensive Gynecologic Operations. W. Soergel. Zentralbl. Gynäk. 77:561-571 (No. 15) 1955 (In German) [Leipzig, Germany].

Soergel reviewed the records of 2,000 women who had undergone extensive gynecologic operations during the period from March, 1951, to February, 1954, with regard to the problem of thromboembolism. During the last 18 months of this period the anticoagulant ethyl biscoumacetate (Tromexan) was used for prophylaxis and therapy. It has been ascertained that the hyperprothrombinemia that exists immediately after the operation subsides gradually on the first and second day after the operation, but then it rises again and reaches a new peak on about the sixth postoperative day. This second peak corresponds with the observation that postoperative embolism is most likely on the fifth or sixth day after operation. The author began Tromexan administration for prophylactic purposes on the fourth postoperative day. He usually discontinued it on the 10th or 12th day at first, but later not until the 12th or 14th day. The use of Tromexan is contraindicated in patients with disturbances in the blood coagulation, with liver disease, with renal insufficiency, with considerable hypertension, and in pregnant women. Prophylactic treatment with Tromexan was not used in all patients routinely but only in 201 selected from among 1,000 women. Later it was found that the selection for prophylactic therapy had not been sufficiently wide, in that all those who died of pulmonary embolism and all but four of those who experienced thrombosis and infarcts had not received prophylactic Tromexan therapy. With regard to the therapeutic use of Tromexan, the author found that treatment time in the phlebothromboses was reduced by about one-third; the subsidence of edema and the recanalization of the veins also was more rapid; extension to the femoral vein was often prevented; and many of the late sequelae of phlebothrombosis were prevented. Severe hemorrhages that could be ascribed to no other cause than the Tromexan were observed in eight cases. The author concludes that Tromexan is valuable in the prophylaxis as well as in the treatment of postoperative embolism. He still prefers selective to routine prophylactic treatment with Tromexan. He feels that the following groups should be protected against thromboembolism by the prophylactic administration of Tromexan: those whom Rehn regards as the thromboembolic type; those who have been operated on for myoma or carcinoma, or who have severe inflammations; those over 45 on whom plastic repair is done; those who are exhausted physically and mentally; those with cardiovascular defects; all those who are over the age of 50; those with varicosities; those who had a tubal abortion; and all patients in whom a hyperprothrombinemia of over 80% is established on the third day after operation. Atmospheric factors should also receive attention in that hyperprothrombinemia is particularly dangerous when the barometric pressure decreases rapidly. Other important prophylactic measures include prevention of infection, bandaging the legs before operation in patients with varicosities, continuous blood pressure control after operations, breathing exercises facilitating the suction effect of the diaphragm, elevating the foot of the bed, and early rising after operation. The hemorrhage that might be brought on by coumarin preparations is a lesser threat than is embolism.

Prophylaxis of Thromboembolism in Surgical Gynecology with a Coumarin Derivative and Its Antagonist Vitamin K_1. H. Röttger. Zentralbl. Gynäk. 77:571-577 (No. 15) 1955 (In German) [Leipzig, Germany].

Since an oil-soluble vitamin K_1 preparation has become available that will normalize the coagulation process within a few hours, it has been possible to use so-called super Dicumarol preparations in the prophylaxis and therapy of thromboembolism. This report is concerned with 3-(1′-phenylpropyl)-4-oxycoumarin, which has been introduced into clinical use under the term Marcumar. It differs from bishydroxycoumarin (Dicumarol) in that it contains only one oxycoumarin group. The author comments on the action mechanisms of this and other coumarin derivatives as well as of their antagonist vitamin K_1. On the basis of experiences with Marcumar in the prevention of thromboembolism after gynecologic and obstetric operations, the author stresses particularly the protracted and uniformly persistent action of this coumarin derivative, which results in a uniform reduction of the coagulation factors and in a leveling off and is therefore particularly suited to prolonged prophylaxis and therapy. The thromboplastin time does not have to be determined so frequently. If the values should go too low, as the result of excessive dosage or hyperreaction on the part of the patient, the coagulation mechanism can be quickly restored with the aid of the oral administration of the oil-soluble vitamin K_1 preparation.

Female Vaginal Cycle: Review and Normal Cytological Material. Bibl. læger 146:213-246 (Nov.-Dec.) 1954 (In Danish) [Copenhagen, Denmark].

The author's investigations, in agreement with earlier investigations, confirm that there is a well-defined, cytologically demonstrable vaginal cycle, which can, according to the varying relations between the different blood cell types, their morphology, and their grouping, together with the presence of erythrocytes and leukocytes, be divided into different phases of which the ovulation phase is the most striking. The most constant factor from cycle to cycle is the eosinophilia. If the daily variation in eosinophilia is shown in curves, characteristic curves appear with a maximal plateau about the time of ovulation and a steep fall in the postovulatory phase. Comparison between the average eosinophilia curve and the estrogen excretion curve shows clear agreement.

Problems Associated with Treatment of Cancer of the Endometrium. J. M. Sadler. Am. J. Obst. & Gynec. 70:17-28 (July) 1955 [St. Louis].

The use of preoperative irradiation in the form of intrauterine radium followed by total hysterectomy and bilateral salpingo-oophorectomy in six to eight weeks has been advocated by many as the method resulting in the best survival rate in women with cancer of the endometrium. This study was undertaken to evaluate the use of radium in this manner. It was found that the insertion of radium sources into the uterine cavity is inaccurate as to placement and distribution. There is danger of perforation of the uterus and of spread of infection or tumor cells. Five thousand milligram hours of intrauterine radium do not deliver enough gamma roentgens or "tissue" roentgens to important points in the pelvis to be cancerocidal. A method of staging of adenocarcinoma of the endometrium is presented, based on operative findings and pathological study of removed tissue. A review of 99 cases revealed residual carcinoma in 38% of stage 1 and 88% of stage 2 lesions after preoperative intrauterine irradiation with radium. Cancerous involvement of the myometrium was not influenced by irradiation of this type and the recurrence rate in stage 2 growths was 29%. The lowest recurrence rate was obtained with surgery alone. Vaginal hysterectomy was superior to radium alone in a few selected poor-risk patients. The results with x-ray and radium therapy alone were poor. The few cases presumably cured by this method may have been superficial lesions of low-grade malignancy or of the polypoid type with the curet being largely responsible for eradicating the tumor. Surgery has proved to be the best method of therapy for this disease in the author's clinic. A more extensive operation is described and is being utilized. By employing this operation, which includes pelvic lymphadenectomy, the author hopes to reduce the number of recurrences in patients whose disease extends beyond the limits of the uterus.

The Diagnosis and Prognosis of Female Genital Tuberculosis. B. P. Zummo, H. Sered and F. H. Falls. Am. J. Obst. & Gynec. **70**:34-43 (July) 1955 [St. Louis].

Studies made at Cook County Hospital in Chicago convinced Zummo and associates that tuberculosis of the female genital tract is not so rare as is generally believed. Since January, 1948, they made a study of 64 patients with genitoperitoneal tuberculosis; 52 patients were operated on, and 12 were not. Of the surgical group, 36 cases were correctly diagnosed before surgery, while 16 were misdiagnosed and initially operated on for other conditions than genital tuberculosis. Of this latter group, 11 were subsequently reoperated on, after a course of drug therapy. Genital tuberculosis, silent or active, may be one of the most difficult gynecologic diagnoses to make, because of the manner in which it masquerades as other gynecologic conditions. In this series, 25 patients gave evidence of pulmonary involvement; 10 patients showed evidences of gastrointestinal abnormalities, of which seven were suggestive of tuberculous involvement. Endometrial and cervical histological biopsies are useful, as they do not compete with bacteriological studies but are complementary. Hematological studies show two important features: (1) a relative or absolute leukopenia will be noted in most cases of genital tuberculosis, and (2) at least 50% of patients with active infections will have abnormally low hemoglobin levels. The discouragingly low incidence of positive smears by the Ziehl-Neelsen technique indicates the desirability of further exploration of the fluorescing auramine technique. A follow-up study of 28 patients treated with accepted procedures of the day (1945 to 1947, inclusive) disclosed that within two years after leaving the hospital 18 were dead, 4 were alive, and 6 were missing. Presumably one or more of the latter must have also died. The introduction of streptomycin was a milestone in the efforts to arrest or cure genital tuberculosis. The combination of the streptomycin group with *p*-aminosalicylic acid (PAS) and/or isoniazid has dramatically changed the usual chain of events. Silent lesions in the endometrium and/or oviducts respond promptly to these drugs. Pregnancies are now known to have occurred after drug therapy provided the oviduct had not been occluded or distorted or the mucosa too extensively involved. More advanced pelvic lesions still require prolonged and diligent supervision. Many patients heretofore considered candidates for surgery have been spared the ordeal and its possible associated complications because of early diagnosis and response to the drugs. However, in many instances subsequent surgical intervention is still necessary. This is particularly true of those patients who present adnexal masses, abscesses, prominent thickenings and infiltrations, and ascites.

PEDIATRICS

Congenital Heart Disease in Infants Diagnosed by Aid of Heart Catheterization and Angiography. I. Boesen, J. Lind, B. Merrild-Hansen and others. Ugesk. læger **117**:707-712 (June 2) 1955 (In Danish) [Copenhagen, Denmark].

Congenital heart disease was diagnosed clinically and by means of heart catheterization and/or angiography with intracardial injection of contrast substance in 34 out of 37 infants examined; 17 were theoretically operable. In 11 cases there was hypertension in the pulmonary artery combined with septum defect and left-right shunt. The examinations disturb the infants but little, and the results allow operation to be recommended in a number of patients on a considerably more certain diagnostic basis than previously.

Treatment of Infantile Cerebral Palsy with Glutamic Acid. N. S. Dragunova. Pediatriya pp. 59-63 (March-April) 1955 (In Russian) [Moscow, U.S.S.R.].

Glutamic acid and its amide, glutamin, have a stimulating effect on body metabolism and especially on brain tissue. Glutamic acid was used in the treatment of 50 patients. Forty-seven had various forms of cerebral palsy, of whom 10 had received no prior therapy, and 3 had microcephaly. On the whole, the results were good; they were excellent in the children who had not been previously treated. Very young children with severe disease were not much benefited. The intravenous route of administration was found to be traumatizing and was replaced by the oral route. In contrast to other workers, the author used small doses: one teaspoonful of a 1% solution of glutamic acid in a 40% solution of fructoglucose three times a day in *children of preschool* age and a *tablespoonful* for older children. These doses were administered after meals. Some children became restless and overstimulated, and their dosage had to be cut or temporarily stopped. Otherwise there were no untoward effects of therapy. Glutamic acid had an important effect on the psychic state of these children. Their apathy disappeared and they became lively and interested in their surroundings. Intellectually they became stronger. Their freedom of motion was extended. Hypersalivation was reduced. In some cases epileptic fits were obviated. Glutamic acid therapy can be used satisfactorily in combination with other treatments such as physiotherapy. Its effects become noticeable after the administration of 250 or 300 gm. of the 1% solution. For maximum effect a course of treatment must extend over a period of four or five months. The course can be repeated one or two months later.

**Tuberculous Morbidity in Infants Vaccinated with BCG in Wa
saw.** H. Zapasnik-Kobierska and M. Stopnicka. Rev. tuber
19:369-383 (No. 4) 1955 (In French) [Paris, France].

Two hundred five BCG-vaccinated children, aged from 2
15 years, were referred to a special clinic in Warsaw, Polan
for symptoms presumed to be tuberculous. Some of these p
tients had already received antituberculous therapy. The dia
nosis proved to be correct, however, only in 22 of the childr
(11%). There were 15 cases of tracheobronchial adenopath
2 of pleurisy with effusion, one of tuberculous uveitis, and
cases of calcified lymph nodes. In only one of these patie
was the vaccination considered to have been completely effe
tive; the other cases of tuberculosis cannot be taken as eviden
against BCG. The 183 children with false diagnoses of eig
different forms of tuberculosis had a wide variety of conditio
that often needed treatment of long duration. The three prin
pal sources of error were: (1) wrong interpretation of
tuberculin test; (2) wrong interpretation of chest roentge
grams; and (3) failure to ask whether the child had been v
cinated with BCG or not. It is clear that tuberculosis devel
rarely in children who have been properly vaccinated with BC
The diagnosis of tuberculous disease must not be made ligh
or quickly, for fear of improper therapy and consequent ha
to the patient as well as unfavorable publicity for the B
vaccination program.

**Active Immunization Against Diphtheria in Nurslings with A
toxins Adsorbed on Aluminum Hydroxide and Aluminum Ph
phate: Comparative Responses to the Two Vaccines.** A. Jemn
Minerva nipiol. **5**:41-44 (March-April) 1955 (In Italian) [Tur
Italy].

The immunizing efficacy and the eventual reactions follo
ing antidiphtheria vaccination with anatoxins adsorbed
aluminum hydroxide and on aluminum phosphate, respective
were studied in two groups of infants most of whom were nu
lings in the first year of life. The first vaccine was used for 38
fants, 10 of whom were born prematurely; the second was us
for 41, and of these 7 were born prematurely. The infants we
given two injections of each vaccine, the first in a 1 cc. dose,
second, four weeks later, in a 0.5 cc. dose. The inoculations we
given intramuscularly because with this route the formation
nodules at the site of injection is prevented and the immunizati
is better. There was no local reaction in any of the infants a
febrile reactions, when they occurred, were commoner in the p
mature infants; they were always, however, mild or moderate
degree. Immunity was increased in all; after 30 days, resu
of the Schick test were negative in 37 (97.4%) infants of t
first group and in 38 (92.7%) of those in the second group.
one premature infant of the first and in three normal infan

of the second group, the test gave a reaction that was slightly positive. The results of this study indicated that one vaccine is not superior to the other with regard to increasing immunity and causing febrile reactions.

UROLOGY

Carcinoma of the Female Urethra: Review of the Literature: Report of Eight Cases. G. E. Fagan and A. T. Hertig. Obst. & Gynec. 6:1-11 (July) 1955 [New York].

Fagan and Hertig discuss incidence, symptomatology, site of origin, pathological aspects, treatment, and prognosis of carcinoma of the female urethra on the basis of literature reports and of eight additional cases, which were observed at the Free Hospital for Women, Brookline, Mass., from 1935 through 1954. All were of squamous or transitional cell type. During this time there were 52,459 gynecologic admissions. The ages of the eight patients ranged between 40 and 73 years. Grossly the appearance of the squamous and transitional cell carcinomas varies, depending upon the stage of the disease. Initially the process is well localized. It may start as a small, papillomatous mass protruding above the surface or as an irregular thickening and induration of the mucosa and adjacent tissue. The initial lesion may appear as a small, spreading, superficial ulcer. As the disease progresses, the lesion may become a soft, fungating mass varying in size, which bleeds readily upon manipulation. Microscopically the squamous cell carcinomas are similar to such carcinomas of any other area. Varying degrees of dedifferentiation may be found so that the tumors may vary from a grade 1 with pearl formation to the highly anaplastic grade 4 type. All tumefactions and all suspicious lesions of the female urethra should be regarded as malignant until proved otherwise. The inguinal regions should be examined carefully for palpable nodes in the presence of lesions of the urethra. The authors mention types of treatment advocated by a number of authors and say that in the eight patients in this series only one had lymph node involvement proved by biopsy at the initial operation. She received local irradiation to the lesion and bilateral groin dissection followed by radon seed implantation to the operative site and roentgen therapy to the pelvic portals. Of the remaining seven patients, three were given only local irradiation with radium or radon seeds and a fourth received local irradiation after excision of the lesion with the diathermy loop. One patient underwent resection of the anterior vulva and left side of the urethral meatus followed by radium locally to the operative site. The treatment of choice for one patient was local irradiation with radium and radon seeds followed by roentgen therapy to the involved region. The last patient in this series received local irradiation following excision of the tumor with the diathermy loop plus roentgen therapy to the pelvic portals. Three patients died within one year. One patient is alive and well four years and seven months following initial therapy. Four patients were alive and well 10 years later. A recurrence developed in one of these four after 10 years, but she is alive and well three years after her second operation.

Recent Therapy of Phosphocalcic Urinary Lithiasis. R. Génot. Presse méd. 63:932-934 (June 18) 1955 (In French) [Paris, France].

The value of two relatively new therapeutic agents in the treatment of phosphocalcic urinary lithiasis is examined. Alumina gels in association with a diet low in phosphorus and calcium were tried in 15 patients with lithiasis with mediocre results. Urinary excretion of phosphates was in fact reduced but only in response to large doses of the drug and not enough to warrant continuation of treatment. Furthermore, calcium excretion was slightly increased. The author also examined 538 specimens from 100 patients before and after injections of hyaluronidase and found no significant changes in the number of colloidal particles, regardless of dosage used or interval after injection. The drug is incapable of preventing the appearance of (1) lime oxalate crystals in normal or lithiasic persons who have received 50 gm. of rhubarb compote; (2) uric acid crystals in a patient with that tendency who has eaten a meal rich in purine; or (3) lime phosphate crystals in a predisposed patient who has received calcium and alkalines simultaneously. The areas of therapy of urinary lithiasis in which real progress has been made recently are treatment of urinary stasis by surgical means; treatment of hyperconcentrations of precipitable material, thanks to the systematic search for hypercalciuria and hyperphosphaturia and their causes; and treatment of urinary alkalosis with drugs acting on ureolytic germs and better acidifying agents.

Indications for and Results in Retropubic Prostatectomy. O. A. Nelson. Surg., Gynec. & Obst. 101:80-84 (July) 1955 [Chicago].

Nelson defines retropubic prostatectomy as the removal of the prostate gland in part or in its entirety through a suprapubic extravesical incision. The reason for operating through the space of Retzius is to prevent the various complications that occur after the transurethral, perineal, or suprapubic-transvesical operation. Between July 1, 1951, and June 30, 1954, Nelson's group performed 238 retropubic prostatectomies for benign obstruction and 12 for early carcinoma. They also performed 291 transurethral resections, and 27 transvesical prostatectomies combined with vesical diverticulectomy. The results confirmed the basic principle set forth by Millin that an operation through the space of Retzius avoids damage to the structures that are important to vesical and urethral function. Postoperative cicatrization in the space of Retzius does not interfere with vesical or urethral drainage. Surgical shock and postoperative pain were definitely less after the retropubic procedure than after the transvesical operation. The outstanding feature of retropubic prostatectomy was the prompt recovery. After removal of the catheter, the majority of patients have very little dysuria or frequency of urination. The clearing of pus and organisms from the urine was more prompt than after any of the other types of prostatectomies. Another factor that contributes to the early, complete, and permanent return of normal vesical function after the retropubic operation may be the interruption of the enlarged sinuses in the prostatic capsule. With hyperplasia of the gland there is, practically always, enlargement of the blood sinuses in the capsule. When these sinuses are unusually enlarged, the condition is comparable to varicosity of the lower extremity. If varicosity of the leg causes suffering, the patient usually gets relief from either ligation or stripping of the veins. Therefore, it seems logical that the ligation of sinuses in the prostatic capsule incident to the retropubic procedure may be of advantage. Practically all types of prostatic obstruction, regardless of the size of the gland, can be removed retropubically. However, many of the small glands can be removed transurethrally with fewer disturbances to the patient than by an open operation. Certain concomitant conditions such as neoplasm or diverticulum of the bladder at times make the transvesical operation the preferable procedure.

Carcinoma of the Prostate: A Clinical and Steroid Metabolic Study. G. Birke, C. Franksson and L.-O. Plantin. Acta chir. scandinav. 109:129-149 (No. 2) 1955 (In English) [Stockholm, Sweden].

This report is concerned with the elimination of androgens in the urine of 64 patients with prostatic cancer after various therapeutic measures. The diagnosis of prostatic cancer was made after palpation per rectum and was corroborated by urethrocystographic or histological examination. Roentgenologic examination of the skeleton (pelvis and lumbar spine) was carried out in all patients, and skeletal metastases were found in 31 patients. The authors found that in untreated patients with prostatic carcinoma the excretion of androgens (chemically estimated as androsterone and etiocholanotone) is—if there is any difference at all—lower than in normal males. Orchiectomy reduces the production of androgen metabolites, but within one month the excretion tends to reach or exceed the preoperative values. When orchiectomy is followed by adrenalectomy, the androgen metabolites disappear completely from the urine. Stilbestrol in a dose of 30 mg. daily totally eliminates the testicular production within five days. Ten milligrams daily is the lowest dose that has the same effect within three weeks and 5 mg. daily, in long-term treatment. Cortisone in a dose of 50 to 75 mg. daily totally depresses the androgen production of the adrenals. In untreated cases the production of androgens can be totally eliminated by a combination of Stilbestrol and cortisone. There is a distinct correlation between clinical effect and excretion of androgens. Patients with a high steroid excretion which has been substantially reduced by the respective androgen-controlling measures present a good clinical effect. This is more pronounced in orchiectomy than in measures to reduce the adrenal production of androgens. Patients with a low excretion of androgens, who therefore show a poor reduction after androgen-controlling measures, present an unsatisfactory clinical response to the various therapeutic measures.

THERAPEUTICS

Fatal Anuria from Phenylbutazone. C. Toussaint, J. Brauman, J. Smulders and P. P. Lambert. Acta clin. belg. **10**:224-243 (May-June) 1955 (In French) [Brussels, Belgium].

A 52-year-old woman received two intramuscular injections of 5 cc. each of Irgapyrin on two successive days for a left sciatica. Two days after the second injection she took a tablet of novalgine-quinine after which she felt ill, vomited, and had fever. The next day there was complete anuria, lasting until a week before her death 17 days later. Death occurred from pulmonary edema with cardiac insufficiency caused by water retention, despite repeated massive peritoneal dialyses. One hundred forty-five grams of urea were extracted by this method and most of the electrolyte disturbances were corrected, but it was difficult to keep the osmotic pressure of the dialyzing fluid higher than that of the plasma. Since the patient was obese, emptying of the abdomen had to be accomplished through small incisions of the abdominal wall, into which polyethylene tubes were placed. There was a considerable amount of intraperitoneal retention. Marked hyperglycemia occurred after the last two dialyses. The development of the various renal clearances gave a bad prognosis for this nephropathy; the urea and creatinine clearances did not rise but remained almost constant. The kidney lesions seen at autopsy appeared to have been caused by prolonged ischemia. Acute arterial hyalinosis was noted in a number of organs. The lesions resembled those seen in experimentally induced renal insufficiency and are probably caused by the same mechanism.

Gastroscopic Observations of the Anticholinergic Effect of Pro-Banthine® on Gastric Motility and Pyloric Function. H. Barowsky. Am. J. Gastroenterol. **23**:557-563 (June) 1955 [New York].

This study on the effect of anticholinergic drugs on gastric motility was carried out to substantiate and amplify previous observations and to obtain more information on the degree of gastric inactivity, on the doses required, and on the differences between parenteral and oral administrations. The gastroscopic method of investigation was selected because it was felt that it was objective and would therefore be most reliable. The patients selected for this study complained of upper abdominal pain. They were all ambulatory and were observed in the outpatient department. Fifty gastroscopies were performed on 20 men and 20 women, ranging in age from 17 to 72 years. Ten had duodenal ulcer, 2 gastric ulcer, 5 gallbladder disease, 5 chronic gastritis, and 18 functional dyspepsia. Pro-Banthine, which is a brand of propantheline bromide, was administered intramuscularly to one group and orally to another. In some instances, on different occasions, the same patient was exposed to both types of tests. It was found that when Pro-Banthine is administered in adequate doses it will cause relatively complete gastric inactivity. Gastric peristalsis stops rather suddenly and leaves the stomach in a relaxed state. At the same time, the rhythmic opening and closing of the pylorus ceases and a relative paralysis ensues. This ability to cause gastric motor inactivity offers a reliable method for testing anticholinergic drugs in human subjects. In some instances, the anticholinergic drug will also cause a fading of the orange-red color of the gastric mucosa. The minimal effective dose varies with the mode of administration. Uniform cessation of peristalsis was obtained with only 10 mg. when given intramuscularly, whereas as much as 30 mg. had to be used orally to obtain the same effect. The length of time required for the drug to become effective was also dependent on the mode of administration; it took approximately 6 to 7 minutes when the medication was given intramuscularly and as much as 15 to 25 minutes when taken orally. Increased dosage did not seem to affect these time factors. Complete gastric inactivity lasted approximately one hour to one hour and 10 minutes. For an additional few minutes, diminished peristalsis was observed, then normal gastric activity ensued. Increased doses did not prolong the action of the drug. Both the intramuscular and oral routes of administration resulted in approximately the same duration of action.

Effects of Large Doses of Chloramphenicol on Human Subjects. I. H. Krakoff, D. A. Karnofsky and J. H. Burchenal. New England J. Med. **253**:7-10 (July 7) 1955 [Boston].

This study was undertaken to investigate the effects of large doses of chloramphenicol in patients with neoplastic disease, since if this drug were a consistent bone marrow depressant it might have therapeutic effects similar to those observed with other bone marrow depressants, such as nitrogen mustard, 6-mercaptopurine, and the folic acid antagonists, and might therefore be useful in certain forms of neoplastic disease. Four patients with inoperable and far advanced cancer were treated with chloramphenicol by mouth. The following diagnoses were made: carcinoma of the vagina, with local extension; perithelial sarcoma, with cerebral invasion; melanocarcinoma, with widespread metastases; carcinoma of the breast, operated on and nonrecurrent; and carcinoma of the rectum, with abdominal and cerebral metastases. The dosage was begun at conventional levels and was gradually increased until the maximum tolerated daily dose of 6, 8, or 12 gm. was achieved. Hematological studies consisted of daily hemoglobin, leukocyte, and reticulocyte determinations. Differential leukocyte counts and platelet and erythrocyte counts were performed two or three times weekly. Bone marrow examinations before, during, and after treatment were performed on three of the four patients. No effect on the course of the malignant diseases was observed. Minor hematological abnormalities and severe glossitis occurred in three patients, the glossitis preventing continuation of the drug. The tongue in these three patients was reddened, edematous, smooth, and very painful. Similar changes were seen in the buccal and pharyngeal mucosa. When the drug was stopped these signs disappeared in three to five days. Tongue and mucosal changes were produced a second time in two of the patients. Severe hematological depression and bone marrow abnormalities occurred in one patient, who tolerated larger doses without glossitis. All abnormalities were reversible on cessation of the drug. In the patients in whom some depression of the formed elements of the blood had resulted from large doses of chloramphenicol, hematological idiosyncrasy did not appear when small doses were readministered. This argues against the concept of drug idiosyncrasy as a mechanism of hematological depression in these patients. It was found also that a fall in the reticulocyte count is the earliest sign of bone marrow intoxication.

Treatment of Intractable Pain with Large Doses of Morphine and Diamino-Phenylthiazole. F. H. Shaw and A. Shulman. Brit. M. J. **1**:1367-1369 (June 4) 1955 [London, England].

The authors report on the use, in 35 cases, of the morphine antagonist 2:4-diamino-5-phenylthiazole hydrobromide, which, while having little effect on the analgesic properties of morphine, reveals marked and lasting antagonism to its respiratory depressant effect and thus renders the clinical use of large doses of morphine safe. The administration of small dosages of morphine at frequent intervals should be abandoned. One should aim at large—1 to 2 grains (65 to 130 mg.)—doses of morphine, which are sufficient to produce an analgesia of six to eight hours' duration and which nevertheless still keep the patient alert. The principle of the treatment consists in giving gradually increasing amounts—.25 grain (16 mg.) increments—of morphine accompanied by diamino-phenylthiazole (15 mg.) over a period of one or two days until the desired degree of analgesia is obtained. In cases of very severe pain it may be necessary to give doses of morphine of up to 2 grains (130 mg.) three or four times a day. Diamino-phenylthiazole is a safe drug. The dose is 15 mg. intramuscularly; as much as 100 mg. has been given without ill-effect, but careful administration is advised as these high doses are approached. Slow and irregular breathing is not a sign of respiratory danger, provided that the respirations are deep and cyanosis is not present. Diamino-phenylthiazole will increase the depth rather than the rate of respiration. For more rapid action, the diamino-phenylthiazole may be injected intravenously. Diamino-phenylthiazole given in therapeutic doses to a morphinized patient causes practically no side-effects. There are no pharmacological contraindications to the use of diamino-phenylthiazole with hyoscine, atropine, barbiturates, or chlorpromazine. The authors present tabulated data on 10 patients and brief histories of 2 of the 35 patients treated with morphine and diamino-phenylthiazole for intractable pain. Another table lists the dosages required for complete relief from pain in all 35 patients. Diamino-phenylthiazole was used also in a few cases of neonatal asphyxia, in methadone hydrochloride poisoning, and for the relief of postoperative pain. In the last-mentioned example the ability of the patient to cough painlessly was important.

Advanced Breast Cancer in Women: Complications of Hormonal Treatment. V. Faria, G. Scarinci and W. Sylvestre. Hospital 48:611-616 (May) 1955 (In Portuguese) [Rio de Janeiro, Brazil].

The use of male sex hormone in women with inoperable breast cancer or in the postoperative period of mastectomy produces satisfactory results in the majority of the cases. The general state of health of the patient improves, anemia and pain disappear, and the body weight increases. The results simulate those of a clinical cure. Frequent unpleasant but not severe complications are hirsutism, increased libido, change of voice and complexion to those of a masculine type, and acne. All of these complications disappear or greatly improve a few weeks or a few months after discontinuance of the treatment. Severe and often fatal complications of hormonal treatment include edema formation, hypercalcemia, and aggravation of the disease. Edema manifests itself by progressive increase in weight. If it is not controlled by a salt-free diet and administration of mercurial diuretics, the hormonal treatment should be discontinued. Discontinuance of hormonal treatment is indicated if edema is acute or generalized, especially if it involves the arm on the side on which mastectomy was performed. Edema in patients with heart disease is another indication for discontinuance of hormonal treatment. Hypercalcemia is occasionally observed in patients with cancer. Its presence is a contraindication to hormonal treatment. Appearance of calcemia in the course of the treatment indicates toxicity and calls for its immediate discontinuance. Early symptoms are somnolence and headache. If the treatment is not discontinued and the condition is not controlled, vomiting, abdominal pain, diarrhea, and renal insufficiency follow. Aggravation of cancer as a result of male hormonal treatment may occur in a small percentage of cases. The androgens accelerate the course of visceral and skeletal metastases and the initial cancer lesion. The general state of health of the patient rapidly deteriorates, the patients have no appetite for food, and cachexia rapidly progresses. However, the symptoms and the disease may become static by discontinuation of hormonal treatment.

Possibilities for Complete Parenteral Nutrition. A. Wretlind. Nord. med. 53:1013-1019 (June 30) 1955 (In Swedish) [Stockholm, Sweden].

Amino acids administered parenterally are utilized for synthesis of the body's protein and can be given to maintain or improve the protein nutrition. Parenteral nutrition includes amino acids and salts and carbohydrates in the form of glucose or fructose together with vitamins. By infusion of amino acids with carbohydrates, positive nitrogen or protein balance can be achieved in a number of cases even though the body's caloric need is not covered. If parenteral nutrition is to be complete, amino acids, glucose, and fat must be present in the solution. Fat in an emulsion for intravenous use must be finely dispersed; the aim is usually to keep the diameter of the particles at .2—1μ. Parenteral administration of fat, so that the entire caloric requirement can be met parenterally, is being studied intensively, and routine administration of amino acid-glucose-fat emulsions containing the necessary salts and minerals in conditions where complete parenteral nutrition is necessary may be looked for in the near future. No method is at present available for producing these emulsions in such a way that they may be stored for any length of time.

Triethylene Melamine (TEM) in the Treatment of Malignant Lymphoid Disease. C. K. Hambly and T. I. Robertson. M. J. Australia 1:900-911 (June18) 1955 [Sydney, Australia].

Triethylene melamine (TEM) is a white crystalline powder structurally related to nitrogen mustard and especially to the active ethylene-imonium transformation product formed from nitrogen mustard in tissue fluids. The authors gave triethylene melamine to 37 patients, selected for treatment with this drug because of generalized disease of hematopoietic or lymphoid tissue or because of resistance to radiotherapy. There were 12 patients with Hodgkin's disease, 10 with chronic lymphocytic leukemia, 9 with lymphosarcoma, 3 with follicular lymphoma, and 3 with reticulosarcoma. The diagnosis was confirmed in each case by biopsy of a lymph node. The drug was given also to one patient with polycythemia vera, to 2 with malignant melanoma, and to one with Lœffler's syndrome, making a total of 41 patients. The investigation extended over a period of 18 months. Postmortem examinations were made on 11 of 20 patients who died during treatment. Triethylene melamine proved to be of most value in chronic lymphocytic leukemia, in stages 2 and 3 of the malignant lymphoid diseases, and in polycythemia vera. It was, however, not the treatment of choice in these diseases. It was of limited value in advanced disease, and its efficacy was directly related to the patient's general physical condition. It has been found possible to use a lower dose than generally reported. This is attributed to giving the drug to the fasting patients with preliminary alkali, thus insuring constant absorption. The hematological effects were most pronounced on neutrophil cells, platelets, and the malignant lymphocytes. Toxic effects have been observed in the bone marrow, the liver, and the gastrointestinal, renal, and central nervous systems, together with minor skin eruptions. The drug is dangerous to patients in poor physical condition, but it is worthy of further trial in the treatment of nephrotic edema, lupus erythematosus, and Lœffler's syndrome.

The Clinical Significance of Positive Cultures and of Isoniazid-Resistant Tubercle Bacilli During the Treatment of Pulmonary Tuberculosis: Report to the Tuberculosis Chemotherapy Trials Committee of the Medical Research Council. W. Fox and I. Sutherland. Thorax 10:85-98 (June) 1955 [London, England].

A study was made on 234 patients with pulmonary tuberculosis who were treated with isoniazid alone (100 mg. twice daily) for three months. The patients were classified from the bacteriological findings at the end of two months into groups of 91 with negative cultures, 58 with strains sensitive to isoniazid, 47 with moderately resistant strains, and 38 with strongly resistant strains. These bacteriological findings were first related to the clinical characteristics of the patients at the start of treatment. Patients in poor general condition or with high degrees of pyrexia, high sedimentation rates, or extensive cavitation were culture-positive at the end of two months more frequently than those with more favorable clinical characteristics at the start of treatment. In contrast, the emergence of isoniazid-resistant organisms was related only to the extensiveness of initial cavitation. Therefore, when studying the clinical significance of isoniazid resistance, comparisons should be restricted to patients with the same degree of initial cavitation. Patients with negative cultures at the end of two months showed on the average greater clinical progress after three months' treatment than patients with positive cultures at two months. When standardized for differences in extent of initial cavitation, the percentages with radiographic improvement at the end of three months were 75% for the negative group and 50% for the positive group. There was much less difference in clinical progress at the end of three months between the patients with sensitive and the patients with resistant strains. The percentages showing radiographic improvement were 55% for the sensitive and 46% for the resistant group. Further investigation suggests that even these differences may not be a direct consequence of the development of bacterial resistance, since the radiographic improvements and deteriorations were evenly distributed throughout the three month period. It is therefore possible that relatively poor clinical progress and the development of bacterial resistance are both characteristic of patients with a particular host response or type of disease. Similar studies of the bacterial content of the sputum show a considerable benefit at three months to the sensitive group, 27% having specimens positive on direct examination compared with 65% for the resistant group. Again further analyses yielded no evidence that this difference arose from changes consequent upon the development of resistance. It is concluded that the early disappearance of tubercle bacilli from the sputum is an important sign of favorable progress of patients treated with isoniazid alone. The study of possible clinical disadvantages due directly to the development of isoniazid resistance is inconclusive. Nevertheless, because isoniazid resistance tends to occur in disease that is pursuing a relatively unfavorable course, its development is an adverse prognostic sign. Isoniazid should be given only in combination with suitable dosages of other drugs.

The Sterilization of Blankets with Cetyl Trimethylamine Bromide. R. Blowers and K. R. Wallace. Lancet **1**:1250-1254 (June 18) 1955 [London, England].

It has been shown that patients in hospital quickly become nose and skin carriers of Micrococcus (Staphylococcus) organisms that are resistant to antibiotics. Blankets are largely responsible for the transfer of these organisms from patient to patient and should be washed and sterilized for each new occupant of the bed. The usual method of laundering blankets by a low-temperature wash does not sterilize them, and autoclaving is unsatisfactory, because it produces gross shrinking and felting. Oiling reduces the dissemination of particles from blankets, but there are objections to this process. The authors describe a method whereby blankets are treated with Cirrasol OD, which is an aqueous paste containing about 12.5% of technical-quality cetyl trimethylamine bromide. The consistency of the paste varies with the temperature, but the paste dissolves easily in warm water. Blankets were taken at random from those coming into a hospital laundry from medical and surgical wards. Treatment with Cirrasol produced blankets from which only occasional organisms were isolated. The mean colony-counts on 78 blankets before and after treatment were 194 and 2.6 respectively. In contrast the routine washing procedure was much less effective; the mean counts for 42 blankets before and after washing were 346 and 208 respectively. After treatment with Cirrasol the blankets were of normal appearance and texture and odorless. The authors were able to show that Cirrasol remained in the blankets by shaking them over culture plates sown with Micrococcus (Staphylococcus) aureus. After incubation the growth of the Micrococcus organisms was completely inhibited. Previous work with quaternary ammonium compounds is mentioned.

Use of Isotope-Labelled Red Cells to Demonstrate Incompatibility in Vivo. P. L. Mollison and M. Cutbush. Lancet **1**:1290-1295 (June 25) 1955 [London, England].

In selecting blood for transfusion, it may be difficult to decide whether a reaction occurring in vitro implies that red blood cells will be destroyed in vivo. For example, crossmatching may reveal the presence of a specific antibody strongly active at low temperatures but doubtfully active at 37 C; in other cases all blood samples may react weakly with the patient's serum at 37 C, suggesting the presence of a nonspecific antibody. In such cases there is a real need for a biological test to supplement tests in vitro. By labelling red blood cells with radioactive isotopes, it is possible to measure the survival of very small volumes of blood cells. In investigations reported here approximately 1 ml. of red blood cells were labelled either with the isotope Cr^{51} or with P^{32}. In addition to determining whether the red blood cells of prospective donors are compatible, this method provides a means of discovering more about the action of blood group antibodies in vivo. It was found that P^{32} is suitable as a label when the survival is to be followed for an hour or so; but Cr^{51} must be used when survival is to be followed for days or weeks. When incompatible red blood cells were injected, their elimination followed one of two main patterns: In the first pattern 50 to 100% of the blood cells were destroyed within 10 minutes; blood cells surviving at the end of this period were much more slowly destroyed. This pattern of elimination was seen when blood cells were injected into patients whose serum contained anti-Fy^a, anti-Le^a, or anti-P. In the second pattern the blood cells were eliminated at a steady rate, with a half-period of 20 to 30 minutes. This pattern was seen when blood cells were injected into patients whose serum contained anti-Rh or anti-Kell. In all cases in which red blood cells were rapidly destroyed in vivo, the indirect antiglobulin test was positive in vitro. However, in cases where the serum contained anti-Le^a or anti-P, the cells were sensitized only if incubated with fresh serum. Moreover in these cases it was shown that the reaction of the sensitized blood cells with antiglobulin serum depended not on anti-gamma globulin but upon anti-beta globulin. Some antiglobulin serums were unsuitable for the detection of these antibodies.

INDUSTRIAL MEDICINE

The Value of Lung Biopsy in the Diagnosis of Occupational Pulmonary Diseases. H. S. van Ordstrand, D. B. Effler, L. J. McCormack and J. B. Hazard. A. M. A. Arch. Indust. Health **12**:26-32 (July) 1955 [Chicago].

In 26 of 66 patients on whom surgical lung biopsy was performed in the course of the past five years at the Cleveland Clinic, a question of occupational disease arose on the basis of history, roentgenologic findings, or a combination of the two. In 11 of the 26 patients, the lung biopsy finally proved a diagnosis of an occupational disease, i. e., asbestosis in 1, siderosis in 1, silicosis in 3, and berylliosis in 6. The cases of 2 of these 11 patients that are representative of all of them are reported in detail. In contrast to these 11 patients, a presumptive diagnosis of occupational disease was disproved by lung biopsy in the remaining 15 patients; presumptive diagnosis had been based on suggestive exposure history in 3, on suggestive roentgen-ray picture in 6, and on suggestive exposure history and roentgen-ray picture in the remaining 6; 3 cases illustrating each of these three categories are reported. Surgical lung biopsy is a direct approach to the diagnosis of diffuse pulmonary disease in patients in whom routinely used studies fail to establish an accurate diagnosis. It is a particularly important procedure in borderline cases in which it is otherwise impossible to prove or disprove the presence of an occupational disease.

Comparative Vascular Pathology of Occupational Chest Diseases: Preliminary Observations. G. W. H. Schepers. A. M. A. Arch. Indust. Health **12**:7-25 (July) 1955 [Chicago].

Both the autopsy and biopsy findings in the lungs of persons who had been adequately exposed to industrial dusts, including quartz, iron, coal, talc, gypsum, diatomaceous earth, beryllium compounds, and asbestos, either singly or in combination, showed a diversity of lesions of the blood vessels whose prevalence and extent varied according to the nature of the foreign substances deposited in the lungs, their quantity, and associated infection. The most pronounced effects were on the smaller vessels and comprised cellular and collagenous lesions of the capillaries in the alveolar walls, damage to the intima, muscular coats, and adventitia of the arterioles and venules, and perivascular deposits of pigments, fibrocytes, and macrophages with variable degrees of associated fibrosis. The effect on these small vessels may be to occlude, stenose, and distort them and to create inefficient vascular short circuits. Larger pulmonary vessels may also show damage, ranging from intimal atheroma to medial segmental hypertrophy and collagen degeneration, cicatrical stenosis, and aneurysmal distention. Such vessels may become eroded and rupture. Exploration of the relationship between the silicotic nodule and the vascular system revealed that in silicosis, the vascular damage is an added lesion over and above the specific collagenous nodules, which later may show their own peculiar vascular degenerative phenomena. In anthracosis, siderosis, berylliosis, talcosis, and asbestosis, the perivascular lesion proved to be an integral and indistinguishable component of the pathognomonic pulmonary dust lesion. Specific dust particles or fibers and even asbestos and tremolite bodies may, in most instances, be demonstrated within or in relation to these vascular lesions. In the presence of superimposed infection, particularly tuberculosis, the vascular damage may be disproportionately great. This effect was found to be enhanced if there was associated quartz inhalation. Asbestosis was not observed to follow these rules directly. It is suggested that these vascular changes may be a factor in the genesis of cor pulmonale, though it is not at present established that they may bring about this result in the absence of associated physiological disturbances leading to anoxia.

RADIOLOGY

Comparison of Bronchograms with Bronchial Lesions of Excision Specimens: Value of Thin-Layer Lipiodol. P. Simonin, J. Girard, J.-P. Grilliat and B. Pierson. Strasbourg méd. 6:283-290 (May) 1955 (In French) [Strasbourg, France].

About 300 bronchograms were performed with lipiodol introduced into the bronchi by vaporization. Only 12 cc. of lipiodol at 20 or 40% for two lungs was used. The patients were all tuberculous women between the ages of 18 and 36. No accidents occurred in the series. Of the 279 bronchograms considered suitable for analysis, only 27 could be termed normal. The commonest abnormality seen in the others was moniliform dilatation (210 cases). It is possible to differentiate this entity from dilatations of the ampulla, and they appear to have separate causes. Seven operative specimens were examined in detail, and three types of bronchial lesions were found in them; tuberculous inflammatory bronchitis, discrete caseous bronchitis, and intense caseous bronchitis. From the combined data it can be concluded that pulmonary tuberculosis is accompanied early and in the majority of patients by lesions of the bronchi of the involved segment. Involvement of the elastic fibers is the causal factor in the formation of the dilatations. The changes thus caused are irreversible; the dilatations can be seen on bronchography in patients with cured tuberculosis. All tuberculous patients should be examined by the harmless thin-layer lipiodol method of bronchography. Severe bronchial alterations are an indication for resection of a segment or lobe rather than for more conservative therapy with danger of tuberculous dissemination through the bronchi. In three out of four cases, involvement of the superior lobe is accompanied by a lesion of Fowler's summit on the same side. In patients with bronchial dilatation, one must ascertain whether this is not the result of former tuberculosis before performing surgical intervention, and the operation should be covered by adequate antibiotic preparation.

Effect of Radioactive Phosphorus on Essential Polyglobulism and Increase in the Number of Platelets: Based on 82 Cases. M. Tubiana and J. Gazel. Presse méd. 63:851-854 (June 1) 1955 (In French) [Paris, France].

Among 82 patients with essential polyglobulism, treatment with radioactive phosphorus brought about a decrease in the number of red blood cells and platelets in every case but one. In two patients with increased number of platelets only a decrease was obtained without the production of anemia or leukopenia. P^{32} acts on the hematopoietic system alone and does nothing to diminish the number of circulating red blood cells. Its irradiating effects last about a month after its ingestion. In view of this, one must wait 8 to 10 weeks before judging the results of treatment, or even longer. Great caution should be exercised regarding a second application. The method of administration used by the authors was 0.9 mc. of P^{32} per 10 kg. of body weight given by mouth in the fasting state. The average length of the remissions obtained varied between 5 and 10 months, but the duration is capable of wide variation. Relapses are affected by treatment in much the same manner as the initial attack, but it would seem possible to use smaller doses of P^{32}. When hematological remission is achieved, and sometimes before, the serum iron increases, gastric disorders disappear, and neurological complications are improved. Radiosensitivity to P^{32} is the same regardless of duration of disease, previous therapy, or the number of red blood cells. Treatment with radioactive phosphorus is usually well tolerated; two cases of severe anemia were observed in this series, however.

Two Cases of Brill-Symmers' Giant Follicular Lymphoma Treated with Radioactive Phosphorus. H. Desgrez, G. Ledoux-Lebard, R. A. Guérin and others. Presse méd. 63:954-956 (June 22) 1955 (In French) [Paris, France].

Two women, aged 50 and 80, respectively, were first seen in the advanced stage of follicular lymphomatosis, with generalized lymphadenopathy and serious complications such as serous effusion. Their disease was radioresistant. P^{32} was administered to them by mouth in doses 25% larger than would be given intravenously, to compensate for urinary excretion of the drug. During the period of therapy, the patients had no malaise nor did they suffer hematological disturbances; such incidents could probably not have been avoided if the patients had been treated by teleradiotherapy. After the administration of the first dose of radioactive phosphorus, there was a period of latency of about three weeks before regression of the adenopathy began. Softening of the lesions was noted during this time. The eventual effect of the treatment was excellent and has remained so during a follow-up of 18 months in the younger patient, whose disease was of five years' duration, and two years in the other, whose disease was of eight years' duration. At the beginning of treatment, the doses should be spaced at short intervals and a constant watch kept on the patient's blood. Treatment should be continued after the disappearance of adenopathy. While roentgen irradiation remains the proper therapy for the localized phase of giant follicular lymphoma (Brill-Symmers' disease), the generalized condition is best treated by P^{32}.

The Incidence of Leukemia in Ankylosing Spondylitis Treated with X-Rays: A Preliminary Report. W. M. C. Brown and J. D. Abbatt. Lancet 1:1283-1285 (June 25) 1955 [London, England].

The long-term evaluation of the treatment of ankylosing spondylitis with x-rays has revealed that some of these patients died from leukemia. In recent months an investigation has begun of the death rate from leukemia among patients suffering from ankylosing spondylitis and treated with x-rays. This investigation is being continued under the auspices of the Medical Research Council's working party on leukemia research, and, while its final conclusions will not be reached for some time, the findings to date are felt to be sufficiently important to warrant a preliminary report. A series of 9,364 patients treated from 1940 to 1954, inclusively, has been analyzed and the expected number of deaths from leukemia in this series has been calculated on the basis of the male age-specific death rates from leukemia in England and Wales for 1953. The observed deaths from leukemia have been found to be at least 5 times, and possibly as many as 10 times, the expected number of such deaths, and among patients given more than one course of x-ray treatment the observed deaths are probably at least 9 times those expected to occur. Evidence suggests that patients with ankylosing spondylitis may be unusually susceptible to the development of leukemia, but also it is likely that the incidence of leukemia is appreciably raised among those patients given more than one course of x-ray treatment. Reviewing the above findings in the light of a number of reports in the medical literature, it is concluded that some, if not the majority, of the observed cases of leukemia may be attributable to irradiation. Further investigation is necessary to confirm these findings.

BOOK REVIEWS

Clinical Disorders of Hydration and Acid-Base Equilibrium. By Louis G. Welt, M.D., Professor of Medicine, Department of Medicine, University of North Carolina, Chapel Hill. Cloth. $6. Pp. 262, with 11 illustrations. Little, Brown & Company, 34 Beacon St., Boston 6; J. & A. Churchill, Ltd., 104 Gloucester Pl., Portman Sq., London, W.1, England, 1955.

This timely book deals with problems that in recent years have come to the foreground of clinical interest in medicine and surgery, as well as in many of the specialties. In the first part, which deals with physiological considerations, basic concepts and units of measurement are well defined and various factors influencing the exchange of electrolytes and water, the acid base relationships, and renal physiology are discussed. The much longer second part concerns clinical considerations, including the maintenance and requirements of various metabolites, as well as the parenteral use of fluid, followed by chapters dealing with such specific clinical problems as dehydration, endocrine disorders, acidosis, alkalosis, edema, and acute renal insufficiency. These chapters are extensively illustrated by case histories, and an ample bibliography leads to valuable reference material. The basic principle of the book is the consideration of disorders of electrolyte metabolism as a problem of disturbed equilibrium in general rather than as a specific manifestation of a given disease. It recommends that, in the management of the individual patient, the broader nature of the disturbance not be overlooked. The approach is clinical with the physiological basis well interwoven. Practical diagnostic and therapeutic "pearls" are found throughout the second part of the book. The style is clear but heavy and requires attentive reading. This is the major drawback of the otherwise excellent book, which should be useful for both reading and reference for anybody concerned with these widespread clinical problems.

Prolonged and Perplexing Fevers. By Chester S. Keefer, M.D., Physician-in-Chief and Director, Evans Memorial, Massachusetts Memorial Hospitals, Boston, and Samuel E. Leard, M.D., Assistant Visiting Physician and Assistant Member, Evans Memorial, Massachusetts Memorial Hospitals. Cloth. $5.50. Pp. 248. Little, Brown & Company, 34 Beacon St., Boston 6; J. & A. Churchill, Ltd., 104 Gloucester Pl., Portman Sq., London, W.1, England, 1955.

Fevers of unknown origin present a frequently recurring problem in differential diagnosis. Many of these cases are extremely baffling, and they tend to gravitate into large teaching centers. Although they usually exert a particular fascination for those who have made a special study of infectious diseases, they involve almost every field in internal medicine, and the problem is not systematically approached in textbooks. Thus a volume devoted exclusively to the prolonged fevers is welcome, especially when the senior author is a clinician and teacher of wide experience and international reputation. This book approaches the subject systematically. After a consideration of variations in the normal body temperature, there is a section on the examination of the patient and diagnostic procedures. Thereafter the infectious fevers are discussed in detail, followed by the noninfectious fevers. These latter are associated with tumors, blood dyscrasias, and other conditions. All these subjects are abundantly illustrated by case histories; there is a satisfactory index, and 226 references are listed in the bibliography.

With all this richness of material, it may seem captious to criticize, and yet one puts the book down with a certain sense of disappointment. For example, while the list of diagnostic tests is very full, one would have hoped for more consideration of the order in which these tests are applied. Surprisingly, there is no discussion of the significance of therapeutic agents applied diagnostically. Surely the appraisal of the effects of antibiotics (particularly streptomycin), salicylates, cortisone, chloroquine, and nitrogen mustard looms very large in any study of fevers of unknown origin. Furthermore, rheumatic fever is cursorily treated in just over a page, with no mention of the postcommissurotomy syndrome, while coccidioidomycosis is accorded three pages. The section on drug fever is limited to a consideration of iodism, surely an inadequate treatment of this important field. There is no discussion of sarcoidosis. In a book that describes such rarities as idiopathic familial lipemia and metal fume fever, it is surprising that leptospirosis and cat scratch fever are omitted. On the other hand, much of the book is excellent. The discussions of local septic infections and tumors are particularly good. This volume should be a welcome addition to the library of those interested in fevers.

Canadian Cancer Conference. Volume I. Edited by R. W. Begg, Department of Medical Research, University of Western Ontario, London, Canada. Proceedings of the First Canadian Cancer Research Conference, Honey Harbour, Ontario, June 16-19, 1954. Cloth. $8.80. Pp. 443, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1955.

The National Cancer Institute of Canada was founded in 1947, or exactly a decade after the birth of the National Cancer Institute of the United States. This volume records the proceedings of the first (1954) meeting of cancer research workers of Canada supported under its grants, to which were invited a half dozen guests from the United States and one from Denmark. The papers are oriented along the so-called fundamental approaches and are divided into sessions on experimental tumors, tumor-host relations, enzymes, ionizing radiations, and lung cancer. The articles range from thoughtful surveys and a modicum of original data to brief sketchy generalities. The Canadian contributions show some freshness of concept, such as the radiation chemotherapy of Frank and his confreres, and emphasis on certain aspects not well covered elsewhere, such as the lipid metabolism studies of McEwen. The purpose of the book seems to be primarily archival, as a record of the first of what undoubtedly will be a series of meetings. It presents a good cross section study of laboratory cancer research in Canada. Interest in the volume would be limited to the cancer research worker in the laboratory, and the clinician would find it of but little interest. The Academic Press continues to perform an excellent job of publishing biological research. The format, type, and illustrations are up to its high standards.

Sexual Hygiene and Pathology: A Manual for the Physician. By John F. Oliven, M.D., Psychiatrist to Vanderbilt Clinic, Columbia-Presbyterian Medical Center, New York. Cloth. $10. Pp. 481. J. B. Lippincott Company, East Washington Sq., Philadelphia 5, 1955.

This greatly needed book has been well done. Many physicians and all medical students can read it with profit. The material is well organized in four parts, including sexuality in childhood, in the second decade, and in the normal adult, and finally sexual pathology. The author has an attractive style and employs excellent diction for the most part, with only an occasional word or phrase that the purist might question. Typographical errors are so few as to be negligible. It is refreshing to find a book on sexual science that does not repeat the old error of Krafft-Ebing and Max Huhner, attributing the cause of orgasm to the ejaculation of semen or (as the latter claimed) of lubricating fluid from the bulbovestibular glands of Bartholin. It is also cheering to find a psychiatrist not propounding the so-called vaginal orgasm, but stating "the 'failure-to-transfer' theory, i. e., from the child's clitoris to the adult's vagina, much discussed at one time [is] now in decline." Nothing could be truer than the author's conclusion that nonpsychogenic impotence in aging men is most plausibly associated with arteriosclerotic changes in the cerebral, spinal, pelvic, or genitourinary vessels and that "clinical research on, and employment of, those few aphrodisiac substances which have shown promise has been neglected in recent decades, particularly in the United States." Unfortunately the author uses the psychiatric definition of frigidity "in the strict sense, the inability to achieve orgasm during sexual intercourse, often in the presence of affection, desire, arousal, and coital pleasure feelings." This is a paradox

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

and should be abandoned along with the Freudian claim that every woman who cannot have a vaginal orgasm is frigid. Frigidity means sexual coldness, and it is absurd to call the most passionate women frigid merely because they cannot achieve orgasm in normal sexual intercourse. The term "anhedonia cum frigidity" is used repeatedly and is not only an unfortunate hybrid term, but repetitious, because anhedonia (complete lack of sexual pleasure) is a severe type of frigidity. Havelock Ellis's term, hyphedonia, which means lessened sexual pleasure, is not employed at all. The statement that testosterone is probably ineffective where the woman never had experienced orgasm previously is definitely incorrect. There is a tendency to shorten words, as narcism for narcissism, and to combine two as one (spermigration)and there are a few obsolete words such as 'innards' and "fricating,' but the work is a scholarly one. Although 125 authors are listed in a name index, not one had more than a one page reference, not even Havelock Ellis or Alfred Kinsey, though R. L. Dickinson is mentioned twice. There is no bibliography. This book should be welcomed into medical curriculums and in physicians' offices. The author and publishers are to be highly commended for having made it available.

The Chemistry of Micro-Organisms. By Arthur Bracken, B.Sc., Ph.D., F.R.I.C. Cloth. $6. Pp. 343. Pitman Publishing Corporation, 2-6 W. 45th St., New York 36; Sir Isaac Pitman & Sons, Ltd., Pitman House, 39-41 Parker St., Kingsway, London, W.C.2, England; 381-383 Church St., Toronto, Canada, 1955.

This book grew out of a series of lectures "at one of the large London Polytechnics" on the metabolism of micro-organisms. The people who attended the lectures were scientists, but usually they had had little training in bacteriology and biochemistry. Because he tried to reach these people, Bracken's book is an excellent introduction to the subject. There are chapters on culturing micro-organisms in the laboratory, the place of bacteria and molds in nature, the commercially important antibiotics, and the synthesis by micro-organisms of pigments and of various organic compounds arbitrarily discussed (for ease of presentation) in a chapter on aromatic compounds and in one on aliphatic and heterocyclic compounds. The short bibliographies list chiefly British reference books and journals, but they are either common in libraries in the United States or their counterparts can be found easily. The typography and binding are good, and the index seems to be complete.

Clinical Pathology in General Practice. Specially commissioned articles from British Medical Journal, October, 1953, to July, 1954 (fully revised). Cloth. 21s. Pp. 321, with illustrations. British Medical Association, Tavistock Sq., London, W.C.1, England, 1955.

The organization of a national laboratory service in Great Britain made it advisable to provide the general practitioner with a short, simple, nonconfusing reference on clinical pathology to facilitate his contact with the pathologist. A series of short articles that had appeared in the *British Medical Journal* are here reprinted in book form. The authors, who for the most part are leading clinical pathologists of Great Britain, brought the material up to date. The introduction deals with the present organization of the laboratory service in England. The next section discusses technical procedures, mainly those used to obtain specimens for examination. This is followed by the discussion of various function tests, a fairly large chapter on microbiological procedures, a section on hematology—probably the best, a treatise on laboratory procedures in metabolic and endocrine diseases, and a discussion of skin and industrial diseases. The individual articles are authoritatively and well written, but, because of their brevity, much of the discussion is superficial as compared with books used in the United States. The development of the book also explains the uneven and sometimes sketchy coverage. Nevertheless, the pleasant and lucid way of presentation assists in fulfilling the primary mission of the book, to form a bridge between the thinking of the general practitioner and that of the clinical pathologist. For this purpose, it is probably as good as, if not better than, most similar books published in this country. For the second purpose, to guide in the interpretation of pathological reports, the American practitioner will wish a more thorough textbook.

Methods in Enzymology. Volume I. Edited by Sidney P. Colowick and Nathan O. Kaplan. Advisory Board: Britton Chance et al. Cloth. $18. Pp. 835, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1955.

Medical scientists must be happy that this four volume treatise is being issued, because the work is the first in English on methods used in the study of enzymes. It will bring together a tremendous amount of information scattered through the periodical literature. Volume I is divided into sections on general methods for separating and purifying enzymes, special methods of preparing and analyzing the various enzymes of carbohydrate metabolism, of lipid metabolism, and of the citric acid cycle. Authoritative descriptions of the best procedures were obtained by asking experts to write about their specialties. The response to the requests must have been phenomenal, because there are 118 contributors to this first volume. Editing was kept to a minimum, but any disadvantages due to the lack of systematic nomenclature are overcome by the indexing of individual enzymes under all their common names. The author and subject indexes seem to be complete, and they are printed in type of a size that is easily read. The book is well printed and is sturdily bound.

Population Genetics. By Ching Chun Li, Ph.D. University of Chicago Committee on Publications in Biology and Medicine: Emmet B. Bay et al. Second edition. Cloth. $10. Pp. 366, with 82 illustrations. University of Chicago Press, 58th St. and Ellis Ave., Chicago 37; Cambridge University Press, Bentley House, 200 Euston Rd., London, N.W.1, England; University of Toronto Press, Toronto 5, Ontario, Canada, 1955.

This volume is an extensive revision of the author's earlier "Introduction to Population Genetics," published in 1948 in Peking. Since coming to this country as a refugee from Marxist genetics, Professor Li, now at the Graduate School of Public Health, University of Pittsburgh, has had ample opportunity to exchange ideas with American and British workers in the field of human genetics. The fruits of these discussions are fully evident in the book. "Population Genetics" is an elementary textbook in what many persons consider a difficult area to understand. Dr. Li makes the subject as clear and as simple as possible. Although the treatment is necessarily mathematical, it is restricted to the level of college algebra and some elementary calculus. With that much background and a knowledge also of elementary Mendelian genetics, no student should have difficulty, since Professor Li has taken great pains to develop each exposition step by step. It is very helpful to have this approach rather than the all too common jumping from peak to peak, leaving the reader to follow if he can.

The subject treated comprises the range of methods applicable in population genetics and in no sense attempts to review the various contributions to the field. Genetic variance and correlation are introduced early and form the basis of further considerations. The first chapters are concerned with the genetics of a single locus in a population, then the complexities of independent and interacting loci are taken up. Systems of mating and inbreeding lead into an invaluable discussion of Sewall Wright's method of path coefficients. Other important topics that are adequately discussed are assortative mating; mutation, selection, and the joint effects of mutation and selection on gene frequencies, subdivision and migration; small populations and effective size; and stationary gene frequency distributions. The author is eclectic in his approach, using the contributions of Wright, Fisher, and Haldane as the basis of the superstructure built on the Hardy-Weinberg equilibrium principle, but he also makes use of many of the contributions to theory and method made by others in this field, including himself. The numerous examples and problems that follow each chapter are especially valuable. Whoever works through these should have a firm grasp of the methods discussed and should be aware of some of the pitfalls that await the foolhardy.

In short, this textbook not only provides a greatly needed elementary treatise for the student but also serves as an invaluable reference work for those who must grapple with human population genetics. Physicians who increasingly are coming to recognize the importance of hereditary factors, especially in the chronic diseases, should find here many useful methods for helping to determine the mode of inheritance of a particular condition, the effects of mutation and selection on its frequency, and the complex interplay of dominance, penetrance, and gene interaction with other genes and with environmental factors that determines the incidence of a trait or predisposition. The books now available that are most comparable to this one are Hogben's "Introduction to Mathematical Genetics" and Dahlberg's "Mathematical Methods for Population Genetics." Li's book, however, is easier to follow than the former and is far more complete in its treatment than the latter. In format this volume is a fine example of the excellent work of the University of Chicago Press, but its high price puts it virtually beyond the purchasing power of the general student.

Ciba Foundation Colloquia on Endocrinology. Volume VIII: The Human Adrenal Cortex. Editors for Ciba Foundation: G. E. W. Wolstenholme, O.B.E., M.A., M.B., and Margaret P. Cameron, M.A., A.B.L.S. Assisted by Joan Etherington. Cloth. $10. Pp. 665, with 227 illustrations. Little, Brown and Company, 34 Beacon St., Boston 6; J. & A. Churchill Ltd., 104 Gloucester Pl., Portman Sq., London W.1, England, 1955.

This volume contains the proceedings of the Conference on the Human Adrenal Cortex held in London in 1954. The participants represented many countries. The book is divided into two parts. The first is concerned mainly with histological and biochemical aspects of the adrenals and corticomedullary relationships and the second with physiological and pathological aspects of the adrenals and hypothalamic and pituitary relationships. Though this volume is primarily concerned with the human adrenal cortex, many of the articles or chapters deal with useful supporting information obtained from animal experiments. Assembled here is the accumulated knowledge of current research on the adrenals in its many ramifications. Though many of the conclusions are incomplete and the results of studies by various workers are contradictory, the lively discussions and arguments among the participants, which are found at the end of each chapter, add much to a better understanding of the complex problems being weighed. A great deal of information not readily available has been brought together under one cover. The book is easily read, is well illustrated, and contains a mine of information. It should prove a useful reference book to workers interested in adrenal physiology and pathology. The clinician should find it useful as background for his clinical studies. The possible areas of usefulness of adrenalectomy and hypophysectomy for the control of certain hormone-dependent neoplasms in man are explored. The chapters on virilizing adrenal hyperplasia and adrenal cortical hyperfunction (Cushing's syndrome) are quite complete.

Modern Health. By James H. Otto, Cloyd J. Julian, and J. Edward Tether, M.D. Cloth. Pp. 566, with illustrations. Henry Holt and Company, Inc., 383 Madison Ave., New York 17, 1955.

Intended for use by high school students, this volume shows evidence of careful preparation to insure attractiveness and ease of use. It is filled with illustrations, many in color. At the end of each chapter, there are a summary, a series of questions for discussion, an exercise in fitting words to definitions, and a true-or-false exercise. All of these devices should be useful to both teachers and pupils at this educational level. At the end are a glossary and three appendixes, including a table of infectious diseases, a list of items for a home first-aid kit, and a listing of National Health Council members. There is also an adequate index. The seven units are presented in a personalized manner, with emphasis on "you." They begin with considerations of personality and personality problems, go on to special senses and the nervous system, and then cover bones and muscles, food and oxygen supplies, protection against disease, and first aid and safety. This volume is intended for use at any level of the high school curriculum. The unit arrangement is such that each can be studied separately, as, for example, in conjunction with work in other courses. Special attention has been paid to keeping the language understandable, and when technical terms are used they are set in boldface, with phonetic spelling. The large number of illustrations adds to the attractiveness of the book, and charts and diagrams are used extensively for graphic demonstration of basic facts. The double column format facilitates reading. The volume should find a definite place in any high school health education program.

The Psychoanalytic Study of the Child. Volume IX. Managing editors: Ruth S. Eissler, M.D., Anna Freud, LL.D., Heinz Hartmann, M.D., and Ernst Kris, Ph.D. Editorial board, United States: Ruth S. Eissler, M.D., et al; Great Britain: Anna Freud, LL.D., Willie Hoffer, M.D., Ph.D., L.R.C.P., and Edward Glover, M.D. Editorial assistant: Lottie M. Maury. Cloth. $7.50. Pp. 369. International Universities Press, Inc., 227 W. 13th St., New York 11, 1954.

Like its predecessors, this volume presents a collection of clinical and theoretical papers on the application of psychoanalytic concepts to the study of early years of life. The firs section consists of an abstract of Anna Freud's public lectur in New York (the 1954 Freud Memorial Lecture) on psychoanalysis and education and a transcript of a day-long discussio conducted with Miss Freud's participation, on problems of i fantile neurosis. The editors have rendered a valuable servic in publishing this material, as both the lecture and the discussio contain ideas that will probably have a lasting impact on psych analytic thinking. The abstract of Miss Freud's lecture unfort nately can convey little of the charm and lucidity of her tal which presented a fresh approach to the role of parents in t development of childhood neurosis. The papers in the seco section range from brief presentations of clinical experiences the treatment of childhood emotional problems to complex t oretical formulations. The last section contains three papers the technique of child analysis. While the contributions nece sarily vary in quality, the general standard is very good. Sin with few exceptions, the papers are written in the technical l guage of psychoanalysis, the chief appeal of this volume will to the various disciplines in which psychoanalytic concepts current.

Healthful Living. By Harold S. Diehl, M.A., M.D., Sc.D., Profes of Preventive Medicine and Public Health, and Dean of Medical Scien University of Minnesota, Minneapolis. With foreword by Morris Fishb M.D. Fourth edition. Cloth. $6. Pp. 529, with 53 illustrations. McGr Hill Book Company, Inc., 330 W. 42nd St., New York 36; 95 Farring St., London, E.C.4, England, 1955.

In this new edition, the shift to the concept that health found where a person can learn about disease and its prevent is given new emphasis. As in earlier editions, Diehl has carr out a creditable presentation of current facts and attitudes the many aspects of health with which the average lay rea is concerned, and the present approach has been broadened e more. Included are discussions that would have been conside far too technical in earlier days, such as those dealing with Rh factor, hormones, antibiotics, and the possible relations of smoking to cancer. A special glossary of medical terms i valuable part of this orientation process. The philosophy of volume is established in the first chapter, which deals with p sibilities of longer life and better health. Chapter 2 summari major health problems, and the third chapter is devoted to men health. Succeeding chapters consider various aspects of fo and nutrition, exercise, the special senses, care of the skin, d ease prevention, narcotics, internal secretions, and sex life a parenthood. The changing age pattern of the population is viewed in a special chapter, and the final chapter provides gu ance on selection of a family physician. At the end there a tables of standard weights, food values of common portions, personal health record, and the glossary mentioned. The book adequately if not profusely illustrated, and large type on high calendared paper makes it easily readable. The extensive ind should be of value to any reader. This volume can be reco mended to the lay public as a means of improving knowledge a understanding regarding today's health problems. The develo ment of radioactive elements and disaster measures are not co sidered. This may be a sensible departure. Seven special fil are available through the publishers for use in connection wi various chapters. These are on emotional health; bacteria; bo care and grooming; the nose, throat, and ear; reproduction; ho mones; and heart and circulatory disorders.

Veränderungen des Thoraxröntgenbildes bei Brustkrebspatienten. Von Doz. Dr. med. Wilhelm Oelssner, kommissarischer Direktor des Röntgeninstitutes der Karl-Marx-Universität Leipzig. Cloth. 21.40 marks. Pp. 164, with 115 illustrations. VEB Georg Thieme, Hainstrasse 17-19 Aufg. C, (10 b) Leipzig Cl (Russian zone) Germany, 1955.

Roentgen examination of the chest has become of extraordinary significance in clinical medicine. In clarifying individual cases, as in serial examinations, it frequently is the decisive diagnostic measure. It is used mainly for primary thoracically localized conditions when pulmonary tuberculosis is suspected or must be excluded. It is rarely used in patients with mammary carcinoma in spite of the fact that repeated roentgen examination of the thoracic cage is invaluable in its treatment and guidance. No previous book has stressed the indications, findings, and results of repeated roentgenographic examination during the treatment of mammary carcinoma, and individual articles touching on these are scattered. Even textbooks on surgery and roentgen diagnosis mention this subject briefly, if at all. No region of the body is more frequently examined with the roentgen ray than the thorax, and, since mammary carcinoma is second in frequency among the malignant tumors of women, this becomes important to internists and chest physicians, who most frequently make such examinations. Every physician should be conversant with the findings of mammary carcinoma, even though he is not concerned directly with this condition. The author's studies cover a period from 1947 to 1952, including more than 1,600 patients with mammary carcinoma. He lists as significant: (1) intrathoracic metastases, (2) severe associated conditions in the breasts that can influence the prognosis and the value of the treatment used, (3) changes resulting from therapeutic measures, and (4) the fact that a lesion is stable. A series of comparative roentgenograms is presented for simplifying differential diagnosis of subsequently appearing symptoms. The book presents the subject clearly for the physician who can read German and offers valuable data on a commonly neglected subject.

Research and Education in Rheumatic Diseases: Transactions of First National Conference at National Institutes of Health, Bethesda, Maryland, November 19, 1953. Edited by Joseph J. Bunim, M.D., Clinical Director, National Institute of Arthritis and Metabolic Diseases. Sponsored by American Rheumatism Association, Arthritis and Rheumatism Foundation, and National Institute of Arthritis and Metabolic Diseases. Published in cooperation with National Institute of Arthritis and Metabolic Diseases, Public Health Service, United States Department of Health, Education and Welfare. Cloth. Pp. 141, with illustrations. Arthritis and Rheumatism Foundation, New York, 1954.

This small volume presents a compilation of papers delivered at the First National Conference of Research and Education in Rheumatic Diseases by the leading investigators and clinicians in this field. The book is divided into four parts. Part 1 deals with the promising areas for exploration and research; part 2 with research and training in rheumatic diseases in the United States; part 3 with medical education in rheumatic diseases; and part 4 with a general discussion of problems relating to rheumatic diseases. The style varies with the individual authors, but every paper is well written. The papers have excellent illustrations, plates, graphs, and bibliographies. The volume contains an authoritative presentation of the basic and clinical research that is currently carried on by prominent investigators. It should prove valuable to all those in the field of rheumatic diseases and stimulating to those contemplating work in this field.

Atlas de chirurgie thyroïdienne. Par Jacques Francillon, chirurgien des hôpitaux de Lyon, et Claude Gabrielle, interne des hôpitaux de Lyon, Lyons, France. Préface de Léon Bérard. Cloth. 3000 francs. Pp. 182, with 134 illustrations par Dr. C. Millet. Expansion scientifique française, 15, Rue Saint-Benoit, Paris 6e, France, 1955.

As stated in the preface, the medical treatment and surgical technique of the diseases of the thyroid are well established. The authors call special attention to the care of the pedicles of the thyroid, the recurrent nerve, and the parathyroids. After evaluation of different incisions and surgical techniques practiced in Europe as well as in the United States, the authors' method of ligation of pedicles and vessels in total and partial thyroidectomy is described and the advantages stressed. Different surgical steps are well illustrated by diagrammatic and anatomic drawings. These are accompanied by short and concise texts. Print and illustrations are excellent. On the whole, the book can be recommended for surgical residents and young surgeons. The experienced surgeons may also pick something of value here and there from the text.

Bone and Joint X-Ray Diagnosis. By Max Ritvo, M.D., Assistant Clinical Professor of Radiology, Harvard Medical School, Boston. Cloth. $20. Pp. 752, with 568 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1955.

The high regard in which Max Ritvo is held by his colleagues in radiology and his friends and acquaintances in surgery, orthopedics, and other medical and surgical specialties is evidenced by the fact that he is on the medical faculties of three medical schools located in Boston, is director of the department of radiology and roentgenologist of the Boston City Hospital, and is associate radiologist of the Beth Israel Hospital. He is a radiologist and scientist who possesses the ability, denied so many fine clinicians, to write exceptionally well. Each sentence is clear and concise. Diction is excellent. The explanations are adequate without being verbose. Most of the illustrations are exceptionally well reproduced. The printing is clear and easy to read. This is a reference book rather than a textbook. The first chapter, headed General Considerations, introduces the roentgenologic techniques of bone and joint diagnosis to the medical student or physician who has not had special training in roentgenology. The other chapters have headings similar to those that would be found in the average orthopedic textbook. In this manner, the various lesions of the bones and joints are taken up in an orderly classification. Hereditary, congenital, and developmental disturbances of the skeleton are grouped together in chapter 2; traumatic lesions in chapter 3; infections in chapter 4; glandular, nutritional, and metabolic disturbances in chapter 5; diseases of the joints and the periarticular tissues in chapter 7; bone tumors in chapter 8; and disease of the spinal canal in chapter 9. A splendid addition to this book is chapter 10, which deals with soft tissue roentgenography. The bibliography is adequate and well selected. As the author states in the preface, the emphasis throughout this book is on the description and evaluation of the roentgenographic manifestations of the diseases and anomalies of the bones and joints. The book is intended primarily for the roentgenologist and for those in training in the field of radiology, but it should be of great value to the orthopedist, the general surgeon who does some bone and joint surgery, and to all who have a real interest in the study of the bones and joints.

Kreislaufregulation: Eine physiologische, pathophysiologische und klinische Studie. Von H. Reindell, E. Schildge, H. Klepzig und H. W. Kirchhoff. Mit einem Vorwort von Prof. Dr. Ludwig Heilmeyer. Cloth. 39.60 marks; $9.40. Pp. 315, with 163 illustrations. Georg Thieme, Herdweg 63, (14a) Stuttgart, Germany (agents in U. S. A. and Canada, Intercontinental Medical Book Corporation, 381 Fourth Ave., New York 16), 1955.

This book summarizes present knowledge of the neural and humoral mechanisms that determine heart rate, blood pressure, stroke volume, and other important variables in the cardiovascular system. A 54-page section describes the various forms of circulatory disturbance involving the vegetative nervous system, especially several forms of collapse. This is followed by a discussion of pain referred to the heart and of anxiety as either a cause or a result of cardiac disease. Case histories are given, and there is an abundance of electrocardiograms. The concluding pages give suggestions for therapy, including tables of drugs and doses. Unfortunately, both generic and brand names are capitalized, so that the one cannot be told from the other, and the doses are given in such terms as tablets and drops. These pages also take for granted that the reader has assimilated all of the preceding pages. This he is not likely to have done, inasmuch as the text lapses occasionally into platitude and at one point goes on for more than two pages without paragraphing. This book should be of interest to cardiologists and physiologists.

QUERIES AND MINOR NOTES

DIATHERMY

To the Editor:—*What is the effect on the skin and other tissues of diathermy treatments used in recommended dosage for various conditions such as rheumatism and back "strain"? Is the effect of diathermy cumulative? How often may it be used without harm?* *M.D., Georgia.*

Answer.—The action of medical electronic diathermy is to bring about the heating of tissues for therapeutic purposes. The local effects of diathermy on the skin and other tissues are those that result from localized heating of tissues. These effects include rises in tissue temperatures and vasodilatation in the area, which result not only in an increase in the caliber of the blood vessels but also in an increase in the number of patent vessels. Thus additional channels are opened in the region with a resulting increase in blood flow through the area. Sweating of the skin is perceived. With the localized heating there is also an increase in metabolic activity of the area. If proper dosages are used, the effects of heat are not cumulative, and therefore the effects of diathermy are not cumulative. Diathermy may be applied as frequently as one would apply heat from any other source provided of course that excessive dosages were not used with each application. It must be realized that in the treatment of rheumatism and back "strain" diathermy provides only heat, which in many instances can be considered to constitute only part of the treatment of these conditions.

FLATFOOT IN CHILDREN

To the Editor:—*What should be done for a 21-month-old child who is markedly "pigeon toed." The child is able to walk well but frequently stumbles and falls. There are no other visible abnormalities.* *M.D., New York.*

Answer.—The first thing that must be ruled out is a talipes adductus, which is a true congenital anomaly. The foot is in the adducted position and resists manual correction. Such a foot must be corrected in a manner similar to the treatment for the congenital clubfoot (talipes equino varus). Occasionally the foot turns in due to a deformity of the metatarsal bones (so-called metatarsus varus). This gives rise to a pes adductus deformity and is a congenital anomaly that requires gradual correction by means of casts or surgery. Most intoeing, however, is on a physiological basis. It is an instinctive attempt of a child to correct flatfoot. Correction of flatfoot will obviate the "pigeon-toed" walking. Correction of flatfoot in children is discussed in "Diseases of the Foot," by Emil D. W. Hauser (Philadelphia, W. B. Saunders Company, 1939).

SLIDING HERNIA

To the Editor:—*What may be the cause of a sliding hernia? What are the impressive diagnostic procedures that may reveal the presence of a sliding hernia in the absence of mechanical ileus? What operative procedure offers the most promising results in repair of sliding hernia?*
J. V. Waitkunas, M.D., Woodhull, Ill.

Answer.—The usual hernia is contained in a sac of parietal peritoneum protruding through a defect in the abdominal wall. In a sliding hernia, a partially retroperitoneal viscus slides through the defect to form part of the wall of the sac. A common variety occurs when the parietal attachment of the cecum or sigmoid is drawn into the sac by traction on the parietal peritoneum by the increasing size of an indirect hernia. Another type results from an extraperitoneal organ being pushed through a defect in the abdominal wall just peripheral to it. This type of hernia may be extrasaccular. The usual site is the bladder thrust through Hesselbach's triangle and the external inguinal ring. The surgical import of sliding hernia lies in recognition of the condition before the viscus or its blood supply is injured during herniorrhaphy. The sliding viscus is reduced, and the neck of the sac, if any, is closed prior to its amputation. The defect in the abdominal wall is repaired. There are no diagnostic signs peculiar to sliding hernia. Successful herniorrhaphy depends on astute appraisal of the anatomic and structural situation disclosed at operation and repair of the defect as dictated by the individual circumstances.

POSSIBLE CEREBRAL THROMBOSIS

To the Editor:—*A man, aged 81, previously in good health except for moderate hypertension and a tendency to belch gas after eating, suddenly had a severe right-sided headache not accompanied by vomiting or dizziness. He had an irregular temperature ranging from 98 to 101 F, and there was numbness of the hands and feet. Articulation, memory, and judgment were poor. On admission to the hospital, the patient's red blood cell count was 5,130,000 per cubic millimeter, white blood cell count 5,700 per cubic millimeter, hemoglobin level 16 gm. per 100 cc., and sedimentation rate 56 mm. the first hour. The urine and electrocardiogram were normal. Blood nonprotein nitrogen was 43.5 mg. per 100 cc. A spinal tap was done, after which the headache was suddenly relieved. Cloudy fluid dropped from a no. 20 needle at the rate of 120 drops per minute, the white blood cell count was 1,588 per cubic millimeter, and there were no red blood cells. Polymorphonuclear leukocytes were 90%, and lymphocytes were 10%. Culture was negative. Protein level was 270 mg. per 100 cc. Globulin negative sugar was 14 mg. per 100 cc., and the colloidal gold curve was 5541000000. Blood and spinal fluid Kahn tests were negative. After six days the spinal fluid white blood cell count was 570 per cubic millimeter, with the same proportion of polymorphonuclear leukocytes and lymphocytes as formerly. The numbness had disappeared. His ability to pronounce words was better. The fever persisted. The blood pressure, while the patient was in the hospital, remained between 180 and 160 mm. Hg systolic and 90 and 100 mm. Hg diastolic. If further procedures can be suggested to arrive at a diagnosis I would be glad to have them.*
Louis LeFevre, M.D., Muskegon, Mich.

Answer.—It would appear from the information supplied that this man experienced cerebral thrombosis, but its exact location cannot be stated. In favor of the vascular nature of the lesion are his arterial hypertension, the abruptness of onset, the absence of evidence of materially increased intracranial pressure, and the rather prompt improvement, apparently, without the use of antibiotics or other chemotherapy. The findings on examination of the cerebrospinal fluid are consistent with an infarction that involves either the ependyma or the pia, since a predominantly polymorphonuclear pleocytosis is seen in such cases, together with the increase in protein. The 14 mg. per 100 cc. of sugar in the cerebrospinal fluid strongly suggests bacterial infection, but since the culture of the cerebrospinal fluid was negative, presumably without antibiotics having been given, meningitis would seem to be most unlikely. It would help to know whether the sugar level in the cerebrospinal fluid was low in both specimens. In any case, a third puncture should be done, the pressure accurately measured, the sugar content determined, and the fluid cultured. Of course, neurological reexamination must be frequently carried out. In view of the patient's improvement, it would appear safe to continue the

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

present management pending new information or developments, but the addition of suitable antibiotic therapy could do little harm.

LOSS OF TESTIS

To the Editor:—*A 65-year-old man suffered a traumatic injury of his left scrotum requiring removal of the left testis about a year and a half ago. Following the operation, the right testis became atrophic. Three days postoperatively he began to develop hot flashes and sweats. At that time he was assured that these would be temporary and of short duration and was started on male hormone therapy. Since that time he has continued to have hot flashes and sweats day in and day out occurring about one-half to an hour apart, many times awaking him at night because his pajamas become drenched with perspiration. Even on the coldest winter days the sweat will stand out on his nose and forehead. He has been given long courses of male hormone by injection and by mouth. In addition he has received thyroid and vitamin B complex and has had a long course of probanthine. In all other respects, he is in completely good health and has no other complaints. There are no other unusual physical findings except as related to his absent left testis and atrophic right testis. What would you recommend in this case?*

William S. Keenan, M.D., Rockford, Ill.

Answer.—In the case of a 65-year-old white male who suffered the loss of function of his left testis a year and a half ago due to a traumatic lesion, surgery apparently was applied for removal of the remnants of the left testis and cord, because it is stated that, following the operation, the right testis became atrophic. This would imply that the right testis has also been injured, or the blood supply interfered with, and that atrophy of the testis resulted thereafter. The postoperative development of hot flashes and sweats suggests that perhaps the right testis may have been atrophic prior to the removal of the injured left testis, because this is a very short period of time for endocrine deficiency imbalance from a vasomotor point of view to appear. It was very foolish to assure this patient that these flashes and sweats would be temporary, because one is never sure after castration as to the exact vasomotor and emotional factors that will result. Since the patient has not improved with administration of male hormone and has received vitamin B and probanthine—the reasons for the latter not being clear to me—this suggested that, in addition to a maintenance dose of male hormone, the patient also be given estrogens, which may very rapidly control the hot flashes and sweats. Since one never knows the percentage of estrogen and androgen that is the result of testicular and adrenal function, it is always well to replace (unless one is treating cancer of the prostate) the deficiency of female hormone as well as male hormone. In this case it is suggested first of all to correct the idea that one is sure that these flashes can be controlled, and, secondly, give the patient female hormone in various quantities, starting, for instance, with 1 mg. of stilbestrol or its equivalent every day, then every other day, and then, perhaps, once or twice weekly.

REMOVAL OF PROSTATE

To the Editor:—*A 53-year-old man, having some urinary disturbance, consulted two urologists, each in a different city. He was told he had an adenoma of the prostate. One advised a suprapubic removal; the other a transurethral resection. The patient is in a quandry as to which type of removal would be best for him. He is in good physical condition except for a chronic bronchitis and tachycardia, both of which are probably from the use of tobacco. Is there more chance of recurrence when doing a transurethral resection?* *M.D., Ohio.*

Answer.—It would be impossible to give an intelligent reply to this query as to which type of operation would be best suited to his individual case. It would depend a great deal on the exact size of the gland, all of the other considerations involved, how much tissue should be removed, what the condition of the upper urinary tract is, what the domestic and sexual outlook of the patient is, and who is going to perform the procedure—will he be an expert prostatectomist through open surgery or one who has had a great deal of experience and possesses the skill to do a proper transurethral resection. These are all criteria that would influence such a decision. There is the chance of recurrence after a transurethral resection, especially in a patient 53 years of age who may continue to live for 20 or 25 years beyond the time of the procedure, but there is also always a remote chance of recurrence following enucleation. The chance of recurrence in the hands of a good operator is not believed to be of major consideration.

FLEXION OF KNEES IN HOSPITAL PATIENTS

To the Editor:—*It is the custom of the hospital I am associated with to place the knee gatch up so that the knees are kept flexed in bed. I have been taught that this promotes venous stasis and thrombosis. Inasmuch as the above is standard procedure at my hospital and taught to the nurses I would like to change it but need the support from other places.*

M.D., New York.

Answer.—Twenty-five to 30 degrees of knee flexion relaxes the pull of the hamstring muscles, and, if the patient is properly positioned, should not cause any compression or constriction of the extremity, producing venous stasis or thrombosis. The so-called Williams' position for treatment of patients with acute lumbosacral pain includes this knee flexion. There is no report that would indicate that the thousands of patients so treated every day develop any more phlebothrombosis, or have any more venous stasis, than do patients whose legs are kept straight. In either event, it is advisable to urge and require movements of the legs at frequent intervals. The use of Ace bandages in the older patients or for any patient who has evidence of poor venous circulation is certainly advisable.

TO HASTEN EPITHELIZATION OF BURNED AREA

To the Editor:—*In 1953 a 70-year-old man was burning brush, his clothes became ignited, and he suffered first, second, and third degree burns of hands, arms, legs and genitals. He refused hospitalization and skin grafting. I treated him with Vaseline pressure dressings to extremities until July, 1954. By this time the upper extremities and genitals were healed. On the right leg just below knee there is a band of granulation tissue 5 in. wide extending around the leg onto the calf. On the left leg there are only two areas of granulation tissue the size of a quarter and a dime. To these areas one member of the family applies twice daily a 2% solution of gentian violet with cresol, 0.35%. While the best we can hope for is scar tissue, I would like to know how to hurry this process along.*

M.D., Massachusetts.

Answer.—To hasten the process of epithelization of the granulating area referred to, it is suggested that silver nitrate on a stick (cautery) be applied once a week (silver nitrate, 75%, potassium nitrate, 25%) to the granulating surface. This procedure should cut down the overgrowth of granulating tissue and permit the epithelial cells to grow over the part.

COMPLICATION FOLLOWING EYE INJURY

To the Editor:—*A patient with an intraocular foreign body developed supraorbital neuralgia as a complication about seven days after the removal of a piece of steel. This was the first time I had seen this complication in any eye case. 1. Is this complication rare in any eye case? 2. How often does it occur in eye cases generally and in intraocular cases specifically?* *W. G. Hayden, M.D., Toms River, N. J.*

Answer.—Following serious injury to the eye, such as contusion, abrasion of the cornea, penetration of the globe by a foreign body, and surgical procedures, complications due to the injury frequently appear in a few days or months or even years. Among the most serious complications are pain in and about the injured eye, due to inflammation of the uveal tract, and secondary glaucoma. Uveitis following removal of intraocular foreign bodies is likely to be the rule rather than the exception and frequently exists in a low grade that escapes detection. Evidences may be detectable only by close examination of the anterior segment of the eye with the biomicroscope. The state of the pupil is not a dependable indication of the presence of uveitis, as it may be well dilated and fixed as a result of the entrance of the foreign body, the operation for removal, or the instillation of a mydriatic. The severity of the uveitis is sometimes much greater than the appearance of the eye would indicate, and supraorbital neuralgia is not uncommon as the dominant symptom. A sequel to uveitis in traumatized eyes is secondary glaucoma. In these cases either the pupil has become blocked (iris bombé) or the spaces in the filtration angle have been sufficiently closed to cause a rise in tension. Supraorbital pain in such a case may be the result of the glaucoma, but, in the presence of mixed conditions of the eye, in which either one could cause the pain, there is little reason to try to differentiate. The action of drugs is not normally specific in such cases. Atropine for the uveitis is indicated but may be contraindicated by the secondary glaucoma. Likewise, miotics may be useless or even harmful. In the absence of infection, antibiotics are not indicated, and cortone compounds have no predictable effect. The neuralgia may be severe and persistent, justifying the use of sedatives in doses required in critical pain. Probably the best aid in differential diagnosis and in treatment is artificial fever produced by intramuscular injection of 5 to 10 cc. of boiled milk or by typhoid vaccine to produce a rise in temperature to 101 to 103 F within three or four hours and repeated every other day until symptoms of uveitis disappear. Statistics are not available on the frequency of supraorbital neuralgia following removal of foreign bodies from the eye, but it may be expected in any case and undoubtedly occurs more often than records show, although it may not always be attributed to the injury.

TELANGIECTASIA IN A CHILD

To the Editor:—*I recently saw a 5 year 9 month old child with telangiectasia that apparently began when the child was about 3 years of age, appearing on the face and lower arms. These lesions have become more numerous, spreading to the lips, across the shoulders onto the lower extremities, and to a lesser extent on the body. The lesions are mainly spider-like and blanch on pressure. There are hundreds of small areas of skin atrophy, especially on the arms around some of these lesions. There is no family history of such a disorder. Physical examination of the child is otherwise essentially normal. Laboratory studies including complete blood cell counts are perfectly normal. Is there any treatment that would benefit this child's condition?* *M.D., Tennessee.*

Answer.—Multiple spider-like telangiectasia is not apt to occur in a child of this age. The combination of telangiectasia and atrophy is typical of xeroderma pigmentosum in a child whose skin does not pigment readily. The parents are often blood relatives, and the child shows abnormally strong reaction to exposure to ultraviolet rays. The erythema is prolonged and is followed by atrophy, telangiectasia, and hyperpigmented (post-inflammatory melanosis) macules. Keratosis develops in which cutaneous carcinoma and, rarely, melanoma appear. The only satisfactory treatment is protection from ultraviolet irradiation.

TUBERCULOSIS IN WATER BUFFALO

To the Editor:—*Since coming to India, I have heard it said by many that water buffalo do not contract tuberculosis whereas cows do. Therefore buffalo milk is considered safe. None of the cows are tuberculin tested. Is it true that water buffalo do not contract tuberculosis? Also, what is considered a safe time to boil milk to make it safe to drink?*

Albert C. Holt, M.D., Bombay State, India.

Answer.—Water buffalo are not resistant to tuberculosis. Of 500 inspected in abattoirs in India in 1944, 25 showed infection and Mycobacterium tuberculosis was recovered from lesions in 13 animals. To destroy such pathogenic bacteria in milk it need not be boiled. It may be heated to 142 F to 145 F for 30 minutes or 160 F for 15 seconds.

CONDYLOMA ACUMINATUM

To the Editor:—*I would like information on the source of infection of condyloma acuminatum of the female genitals. Are such viruses transmitted through sexual contact only? In persistent urinary meatal condyloma, is there any better treatment than the use of Podophyllin or fulguration?*

Herman V. Platt, M.D., Santa Monica, Calif.

Answer.—For information on the source of infection, there is an article on condyloma acuminatum by Raymond C. V. Robinson in the *American Journal of Syphilis, Gonorrhea and Venereal Diseases* (38:609, 1954). There is no better treatment than Podophyllin or fulguration.

SUDDEN CARDIAC ARREST

To the Editor:—*With reference to the section Queries and Minor Notes, "Sudden Cardiac Arrest" in* The Journal, *July 2, page 800, a third mechanism, inefficient contractions of the respiratory muscles, might well be added to the two mechanisms listed for producing sudden cardiac arrest following electric shock treatment, namely, heart strain and neurogenic disturbances of the medullary cardiac centers. The inefficient contractions occurring during the convulsions produce hypoventilatory complications, the most serious of which leads to hypoxemia. This situation is further impaired with the simultaneously increased oxygen utilization by the convulsing musculature, and the resulting hypoxemia, alone or with other mechanisms, can also produce cardiac arrest. R. J. M. Steven and others (Anesthesia for Electroconvulsive Therapy,* Anesthesiology **15**:*623-636 [Nov.] 1954) report a technique designed to reduce hypoxemia even when muscle relaxants are used to diminish the violence of the electroconvulsions. However, regardless of the technique used, recognition of this third mechanism will prompt the frequent prophylactic use of oxygen and assisted or artificial respiration in order to prevent cardiac arrest.*

Harold Davis, M.D.
St. Luke's Hospital
San Francisco.

To the Editor:—*In Queries and Minor Notes* (J. A. M. A. **158**:*800 [July 2] 1955) in response to a question concerning treatment of cardiac arrest following electric shock treatment, certain ill-advised recommendations were made, such as: "The ideal way of dealing with cardiac arrest is the use of a cardiac pacemaker." It is further stated that if such an apparatus is not available, strong mechanical stimulation on the chest and various intravenous and intracardiac injections should be tried. Strong objection should be raised to this ineffectual approach. Cardiac arrest following electric shock should be reversible in a great majority of the cases—but requires immediate direct treatment. The oxygen system must be restored without delay (Beck, C. S., and Rand, H. J., III: Cardiac Arrest During Anesthesia and Surgery,* J. A. M. A. **141**:*1230 [Dec. 24] 1949; Brofman, B. L., and Perez-Alvarez, J. J.: Successful Treatment of Cardiac Arrest,* A. M. A. Arch. Surg. **69**:*12 [July, pt. 1] 1954). Oxygen must be delivered to the lungs by positive inflation via an intratracheal tube; circulation must be restored by effective massage of the heart. This can be accomplished only by opening the chest and exposing the heart. If ventricular fibrillation is present defibrillation must be performed before a coordinated heartbeat can be restored. No time can be wasted on such procedures as hooking the patient to an electrocardiograph, repeated auscultation or blood pressure recordings, or striking the chest wall. An electronic cardiac pacemaker has no immediate application in this situation. Its primary use is in Stokes-Adams attacks associated with complete heart block. The time wasted in the useless functions suggested in response to this query would probably preclude successful resuscitation without residual damage to vital organs.*

Bernard L. Brofman, M.D.
Mount Sinai Hospital
1800 E. 105th St.
Cleveland.

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MEDICAL EDUCATION LOOKS AT GENERAL EDUCATION AND THE UNIVERSITIES

Ernest E. Irons, M.D., Chicago

The invitation to participate with a representative of the law in a discussion in which the professions look at general education is an honor that I deeply appreciate. Borrowing a term from my legal colleague I am happy to "present the case" for medicine. In keeping again with legal terminology, I presume I should "qualify myself" as a witness as best I can. I taught in country schools, then in a high school, later in the university, and finally in medical school, where, in addition to other duties, I enjoyed and suffered the vicissitudes of dean of faculty and students for 13 years. In my undergraduate years at the University of Chicago, I was much influenced and stimulated by personal educational contact with its great first president, William Rainey Harper. The continuation of my education has included 50 years of medical practice and the observation of educational results in medical students and on their medical careers. For professional educational theory, however, I must defer to my university colleagues.

EDUCATION

The educational problems of the three professions of the ministry, law, and medicine obviously differ in technical content, but it would seem that their fundamental educational requirements are essentially the same. The ministry and medicine have much in common; originally they grew up together. They share in the tragedies of sickness and death and in the guidance of parishioners and patients along lines of conduct that will avoid the penalties of infractions of moral and medical principles. The law and medicine are closely related in dealing with social and personal problems of individuals, with the administration of justice, and with medicolegal regulations developed through centuries of experience.

Education has been described as the "taking on of the arts and sciences, and of moral attitudes which make up the fabric of civilization." In this process educated people should acquire an appreciation of values, the ability to think, and the ability to see the relations of values to each other in human living. Unfortunately, as George Vincent put it, many people do not think; they merely rearrange their prejudices. The Harvard report on the goals of education stated the problem well. "The aim of education should be to prepare an individual to become an expert both in some particular vocation or art and in the general art of free man and citizen. Thus the two kinds of education, once given separately to different social classes, must be given to all alike. . . . The aim of general education may be defined as that of providing the broad critical sense by which to recognize competence in any field." The observation of Henry Morrison that "we do not learn what to do, but rather become the kind of people who will know what to do" is well exemplified in the quality of performance of physicians and of those in the other professions. How does the change to which the Harvard report refers relate to medical education, particularly to our current problems?

EARLY MEDICAL EDUCATION IN AMERICA

Some reference to the history of medical education in America will clarify the successive changes that have now culminated in the present close relation of medicine to other university disciplines. In the beginning, medicine had been closely associated with the priesthood. Its principal elements were a combination of superstition, empiricism, and observation. Out of observation and curiosity, in medicine as in other branches of learning, came science, which has grown in relative importance until superstition has been largely eliminated and empiricism is giving way to reliance on fact. Medicine, together with law and theology, developed in the monasteries and then in the universities—Padua, Montpellier, and Paris—and later in others, including Leyden, Oxford, and Cambridge. In 1765 when the first American medical school was founded in Philadelphia by John Morgan and William Shippen, students of medicine in America, as also in England, qualified by service as apprentices to established physicians; the more ambitious journeyed to London, Paris, Leyden, or Edinburgh to continue their medical studies. The Philadelphia school, patterned after Edinburgh, stated among its requirements for admission to candidacy that "such students as have not taken a Degree in Arts . . . satisfy the trustees and professors of the college concerning their knowledge of the Latin tongue and in such branches of Mathematics, natural and

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Read before the Centennial of Michigan State University, Lansing, Mich., April 27, 1955.

experimental Philosophy as should be judged requisite to a Medical Education. . . . It is further required that each student, previous to obtaining a Bachelor's Degree, shall have served a sufficient apprenticeship to some respectable practitioner in Physic, and be able to show that he has a general knowledge in Pharmacy." These requirements remained in force until the occupation of Philadelphia by the British in 1777.

Later, as medical schools increased in number, the college course, which had been at first an adjunct or review in completion of a serious medical apprenticeship, gained in importance while the quality of the apprenticeships deteriorated and offered only a nominal opportunity to the students, finally becoming merely a perfunctory item of a year's credit on the college course. In the absence of examining boards, independent of the schools, a school diploma was accepted as scholastic qualification for license to practice medicine. Competition among the increasingly numerous schools encouraged low standards of admission and performance, without the salutary control of a competent and independent examining authority. But despite the later separation of licensure from educational function, medical schools continued to increase to the number of 162, largely in response to the needs of a rapidly growing population. Some were poor, some good, and some affiliated or integrated with universities. Such were the conditions up to the decade of drastic reform in medical education at the beginning of the 20th century. Now there are 80 medical schools. All but six are now parts of universities, and all are of approved legal and instructional quality. Thus medical education in America, which began under university aegis, has, after a century of wandering, come back to university guidance and standards. The problem now is how medicine may further improve the quality of medical education and promote good citizenship by availing itself of the scholarly influence of the universities.

MEDICINE—AN ART OR A TECHNOLOGY

Medicine is an art as well as a technology. The growth of science, applied in myriad ways in medicine, has made possible marvelous advances in the diagnosis, treatment, and prevention of disease. In this achievement, medicine in its educational program has turned more and more to science and has frequently neglected cultural subjects that contribute to the art and humanitarian facets of medical practice. With the return of medical schools to closer university association, this fault, which grew during their century-long separation from universities, is now slowly being corrected. A sound technology based on science is requisite to medical progress, but good efficient professional medical care includes the heart as well as the head. Multiple acquisitions of bits of applied sciences have created another difficulty by favoring the formation of many subspecialties, which are taken up by young physicians before they have acquired by experience a broad foundation in clinical practice and a more mature judgment in dealing with human affairs and impulses. The picture of the patient himself is obscured by the shadow of a minor item administered by a technologist. Increase in scientific facts applicable to the problems of medicine has led to so great a multiplication of specialties and subspecialties that increasing numbers of physicians who are highly skilled in some difficult but relatively narrow special field have failed to acquire or appreciate the larger objectives of medicine in the care and cure of the sick patient. This trend toward surrender of a profession to a technology calls forth well-merited criticism of the medical profession, often expressed by the phrase "the passing of the family doctor."

While the younger physician must conserve his time and strength if he is to continue to grow in medicine, he should not forget that the greatest professional satisfaction in the practice of medicine is the close patient-physician relationship of the family doctor. The better-prepared physician of the future will keep abreast of th advances in technology but will still retain the ideals o medicine; the family doctor will not have passed—h will have improved. Medicine is not alone in this extreme technological departmentalization. In universitie also the tremendous increase in scientific interests in th past 50 years resulted in vast university expansion. I making innumerable new appointments, university a ministrations have found it difficult or impossible secure men who "combined their specialties with a sen of the relevance of general culture to all research." A the same time the university specialist, even when h is not a specialist in the natural sciences, has concern himself so exclusively with methods and technolo that the personal, the human side of life is often ne lected. The increasing incorporation into medical pra tice of new scientific knowledge has thus weighted me ical educational interests in favor of science and lessen the apparent importance of cultural subjects such as h tory, philosophy, languages, and literature. This do not prepare the medical student to know his future p tients as men and women. It inclines him to treat disea as a purely technical problem. Some university educ tors even maintain that "times have changed" in educ tion and that no longer should the student be obliged spend his energies in study of subjects not directly co cerned with science. This narrow concept proposes conserve present time and effort at the expense of futu general quality; it accepts the attainments of a tec nology but discards the dedication of a profession.

Premedical cultural education contributes to ment maturity and prepares the student to deal more effe tively with the great masses of scientific data that later h must fit into his medical preparation for his life work. A this point "how to learn" is more important than "wh to learn." A general cultural education not only is one his most important immediately useful tools but also a source of professional effectiveness in the art of me icine and affords entrance to the cultural satisfaction later life. It is evident that not all prospective physicia will be willing to devote more than the minimum tim requirement to cultural subjects, and perhaps some them are well advised to get on with their technologica studies. Not all students can be passed through the sam mold. In subsequent years some of the more pragmatically inclined students will regret their haste, and a fe may even fill in some of the educational gaps and com to enjoy the intellectual satisfactions they would otherwise miss.

QUANTITY AND QUALITY

The "headlong growth of knowledge" and the "extension of education downward" have created new problems in university education as well as in secondary education and in medicine. The increase in population of cities and more recently of suburban communities has so greatly increased the school population that school authorities have difficulty in providing both school houses and qualified teachers. The demands of quantity have interfered with quality. It would appear that some universities also have at times suffered lapses in quality, the causes of which in part have arisen from inferior training of supposedly qualified students in secondary schools and from the popularity of the college idea in the minds of the public and of many students who are not really interested in acquiring a cultural education. The resultant lowering of the average quality of students through this dilution must be a painful experience to scholarly members of those faculties. The results of relaxation of such cultural educational standards as had been attained in medicine were well demonstrated in the last war. Besides the distraction and disturbance of general thinking, medicine suffered through the abbreviation of premedical preparation, the acceleration of the medical course with its condensation of four years into three, and the concentration of internships and residencies. To those of us who were faced with the medical emergency of the armed forces, the acceleration of the medical educational program seemed a necessary and therefore a permissible compromise to which we subscribed as a wartime measure, but we were well aware that educational standards were being sacrificed to immediate necessity.

In his hurried acquisition of prescribed facts, the student lacked time as well as strength for collateral reading; his jaded mind failed to respond to such impulses of curiosity as he might fortunately experience. The superior students felt this keenly; the weaker students never knew what they missed. This wartime temporary step backward in medical education, the ill-effects of which still linger, emphasizes the necessity of a peacetime further advance in cultural education at university levels.

SCIENCE AND THE HUMANITIES

In medicine, even though the medical schools are now largely under the technical guidance of universities, science has come to overshadow the cultural aspects of education. True, it is through the application of modern science, which itself has a definite cultural value, that medicine has achieved its vast accomplishments of the past 50 years in prevention and cure of disease and the lengthening of the span of human life by 20 years. But this prolongation of life in turn has produced new economic, social, and medical problems such as the possible postponement of obligatory retirement age and the medical care of the aging, which will only be solved by broadly educated men and women. The physician occupies a unique place in his community. He cares for the physical and mental ills of his patients, and as family advisor he is requested to pass judgment on a multitude of matters not directly related to medicine. He should be prepared also to accept leadership as a citizen in his community and, as opportunity presents, in the larger affairs of the nation.

In our country for the past 20 years assaults on our national ideals, inaugurated still earlier, have centered on medicine, already selected as a vulnerable point of attack in nations of Europe by socialistic and communistic forces. It is not without significance that programs in education sponsored by communist elements have recommended specialization at an increasingly early age. British medical educators now note with concern the ill-effects of socialized medicine on the motivations and quality of student applicants. In this reversion to inferior standards a "desire for achievement is being replaced by a search for security." To maintain medical standards, which are a significant part here of our national standards of living in the democracy of our republic, the prospective physician must have a basic knowledge of history and literature and economics, a broad and sound philosophy, and a willingness to work. We recall the words that MacMichael attributes to Radcliffe, the great English physician, philanthropist, and benefactor of Oxford, in the story of "The Gold-Headed Cane." Radcliffe said, "For as I have grown older, every year of my life has convinced me more and more of the value of education of the scholar and the gentleman to the thoroughbred physician." Radcliffe's 17th century comment has even greater significance at the midpoint of the 20th century. The ideal physician should be a cultured gentleman. This has nothing primarily to do with wealth; rather it is an expression of education, broad culture, character, kindliness, emotional stability, and inborn consideration for others. These qualities will serve well the public and the physician in his practice, just as politeness and consideration for others in driving a car on the highway will avoid many traffic accidents.

EDUCATION AND MEDICAL RESEARCH

The amazing growth of scientific knowledge, to which medicine owes much of its own achievements in the amelioration of suffering and the saving of lives, has come through the free mental activity of men trained to think rationally and at the same time to give free rein to their imaginations. While entirely new concepts occasionally necessitate an extensive rearrangement of previously held notions, the progress of today rests largely on the labor of yesterday. The man who proposes to engage in research requires first a broad general education in order that he may develop an ingrained critical sense, the first line of defense against wild and unworkable theories. Some men never acquire this discriminative ability, nor have they the diligence to learn what has already been done, and they fall victims to and sometimes become protagonists of procedures that in the end do harm to the cause of medical science. Some even deserve the cynical comment of a celebrated wit: "If you steal from one author, it's plagiarism; if you steal from many, it's research." Manifestly this remark is unfair to good research. It does, however, characterize certain reports that pose as research. Inquiry usually will disclose gaps in the early education of such authors.

The benefits of fundamental research, the result of private expenditure, have been so overwhelmingly demonstrated that research is now confronted with a new problem, that of withstanding popularity. It is assumed that since the value of research to the nation has been so outstanding, more research will be still better, and the government should invest millions to supplement previous privately supplied funds and go in for the purchase of research in a big way. Varying opinions are held as to the advisability of government-subsidized research; some hold that government funds are needed to reinforce private sources now being exhausted by heavy tax burdens, and others maintain that the entry of government funds into the research field will itself discourage further contributions from private sources. But more important than these questions is that of the method of utilization of funds. Imagination and ideas cannot be grown to order; they come from unsuspected places. After the initial idea or concept is born, collateral lines of approach must be explored patiently and often without positive result. The scientific method cannot be forced, nor will the provision of funds by the officials of the state or of foundations for specific purposes of their own devising bring it forth. And so, research must be free—free from the demands of today or tomorrow. Such freedom can be best realized in universities; workers must be under no compulsion other than the inner driving force of their genius. If government funds are to be used to advantage, they should be under the direction of universities, and especially of individuals in them who have already demonstrated their ability to utilize their own funds, free from any governmental obligation or political interference, inspired only by a love of truth.

PERSONAL RESPONSIBILITY

Under recent popular political leadership now fortunately on the wane, many people, especially of the younger generation, have been led to believe that they can avoid personal effort and get help by looking to government. They have been taught to "demand their rights" with no word as to their own responsibilities as citizens. They do not realize that they and their fellow citizens are the government. Humanity demands local and state help for the unfortunate and needy; needy students also should receive help to supplement their own efforts. But they and some of their elders might well consider the fable of the frog.

A frog found himself in a deep rut in the road and made a number of unavailing hops to get out. A rabbit came by, heard the frog's story, and volunteered to get a ladder. When he came back with the ladder, he found the frog sitting on the grass beside the road and asked him how he did it. "O," said the frog, "a wagon came along and I just had to get out." Now as well as then a few good hops are preferable to waiting for someone to bring a ladder.

EDUCATION FOR CITIZENSHIP

The education of a physician should prepare him to participate with his colleagues of the other professions and with all citizens in the "general art of the free man and citizen." Some knowledge of world history, and of attempts to solve social and economic problems, will reveal the fallacies of social schemes that have followed patterns such as that of the "Utopia" of Sir Thomas More. They were inspired by a desire to correct evident social and economic difficulties or governmental abuses but failed because they violated social principles or economic laws of supply and demand, or attempted to regiment a free economy and the lives of citizens. Similar schemes under various disguises, such as economic planning, federal class subsidies, and government by administration rather than by law, have been recently current here and call for an informed leadership so that we may avoid the dangers that still threaten us. An understanding of economics will unmask the false bases of Marxian theory and reveal the inevitable ruin inherent in socialistic and communistic programs. A managed economy is the weapon of a dictator. Even a limited knowledge of the history of nations of the world wil make an educated man more tolerant of religions other than his own and of national ideologies as dictated by tradition, climate, geography, natural resources, population, and food supply. He will recognize the destructive intent and effects of the atheism of Marx and communism and of the effort to regiment humanity and subject all men and women to a single pattern of existence. H will distinguish between "social change" required b higher standards of living and "socialism," whic threatens the economic foundations that have made these higher standards of living possible. Despite his justifiable dissatisfaction with the course of international relation particularly those of recent years, he will hesitate t impose an idealistic, but at present unworkable, system of world government on nations that do not understand it and do not want it. Such proposals have fostered tendency favored also by communistic thought to deci patriotism and love of one's own homeland and a sume to override desires and ideologies of other n tions that may have the same patriotic impulses as do ours. Patriotism, devotion to the homeland, is a secula expression of the spiritual values of tolerant religion They are complementary, and the one enhances th other.

Good qualified leaders in the community, the state or the nation are scarce. We see leaders come and go A man may possess some ability to lead his follower but lacks character, or ideals, or a knowledge of histor and economics, or discrimination between the mediocr and the best; in short he lacks what Sir Richard Livingstone terms the "philosophy of the first rate." The foundation of the philosophy of the first rate and of soun leadership, whether in medicine or in universities o in other activities of citizenship, is a sound cultural education and a continuing faith in the religions of our forefathers.

In any community there are a few leaders; the res are followers. When good leaders are not replaced by their kind, good leadership is slowed or ceases; the followers become discontented and disorganized and readily accept inferior leadership. Spiritual, social, and material retrogressions ensue. This sequence is evident in the history of nations and civilizations of the past. Signs of the same process have appeared in recent years in our own country and demand sound education to save us from pseudoliberals and from the bad leadership of a superficially informed but unintelligent intelligentsia.

CONCLUSIONS

And so we return to the primary definition of the purposes of education. The physician should have a sound vocational training in the acquirement of which a broad general university education, or its equivalent, is fundamental. By it he will learn "how to learn" as well as "what to learn." The profession of medicine is more than a technology. In addition to technical knowledge and skill the physician needs a philosophy of the first rate—character, integrity, conscientiousness, humanity, and a love for the practice of medicine. In the cure and alleviation of the physical and mental ills of mankind, the physician requires an appreciation of the psychological, environmental, social, and economic problems, as well as the physical problems, of his patients.

The triumphs of medicine have added to the stature of the physician in his community, and with this increased influence have come added responsibilities for clear thinking and leadership, for which he must be prepared. The physician shares with those in the other professions the obligations of citizenship, obligations more binding by virtue of his professional relations to the community. In the procession of advancing civilization neither science nor humanities can march alone.

122 S. Michigan Ave. (3).

TRAINING OF RESIDENTS IN RADIOISOTOPE TECHNIQUES

Donald S. Childs Jr., M.D., Rochester, Minn.

The production and availability of radioactive isotopes have presented to the medical profession many valuable agents for use in the fields of medical diagnosis, therapy, and research; however, the basic knowledge and disciplines necessary for the proper use of these substances are not familiar to the average physician. Since radioactive isotopes are potentially dangerous both to the patient and to all engaged in their preparation and administration, the problem of providing the basic knowledge, training, and experience for their safe use has been of grave concern to those charged with the responsibility of distributing the radioisotopes for medical use. Several radioisotopes are being used essentially as substitutes for x-rays and radium. Radioactive cobalt (Co^{60}) teletherapy, radioactive strontium (Sr^{90}) beta applicators, and radiogold (Au^{198}) wire are examples of these uses. The manner of use of these isotopes is similar to that of beta and gamma rays of radium and x-rays and requires very little additional knowledge for men trained in radiation therapy. Other isotopes, such as radioactive iodine (I^{131}), radioactive phosphorus (P^{32}) and radiogold (Au^{198}) colloid, which are administered internally and metabolized by the body, require new and different techniques, new ideas of dosage and dosage distribution, and the knowledge of the pharmacology, physiology, and metabolism of the particular isotope. These concepts are new and require the acquisition of new information.

I^{131}, P^{32}, and Au^{198} have already become accepted agents in medical diagnosis and therapy. Several other radioisotopes hold great promise of becoming useful routine agents in the near future. Many physicians wish to have these isotopes available for their patients. However, the dangers inherent in their use have resulted in limitation of their distribution to persons who fulfill certain criteria of training and experience. When radioactive isotopes first became available for medical use numerous specialists possessed fragmentary information and training that were valuable in the application of these radioactive sources to medical problems. Such persons included radiation physicists, biologists, physiologists, radiologists, endocrinologists, hematologists, and pathologists. The cooperative effort of such individuals resulted in the institution of radioisotope programs in many centers. The necessity for the cooperative participation of individuals in these special fields is reflected in the make-up of radioisotope committees, which are an integral part of radioisotope programs in many institutions today.

TRAINING AND EXPERIENCE FOR PRACTITIONER

How can the busy practitioner who wishes to use radioactive isotopes gain the necessary training and experience? He must learn about radioactivity and the properties of the various emissions, the theory of measuring devices, the radiological units of measurement, and the principles of radiological safety. In addition to this theoretical information, he must have practical working knowledge of the various measuring instruments, methods of assay of isotopes, methods of preparing isotopes for measurement, and information on how to practice radiological safety. Medically, he must know how to interpret the readings that his measuring instruments give him in terms of the patient and his disease, know the indications and contraindications for administering the isotopes to his patient and the biological effects to be expected from the ionizing radiation, and know how to protect himself and his technical personnel from these radiations. Ideally, this material can be obtained best by attending lectures, by reading about the theoretical aspects, by doing actual laboratory work with isotopes and the various measuring instruments, and by participating as an apprentice with another physician who is well schooled in radioisotope techniques. This preparation would require full-time schooling for a considerable length of time, which is usually impossible for the practicing physician. The courses, one month in duration, given frequently throughout the year at the Oak Ridge Institute for Nuclear Studies afford an excellent basis in the theoretical and practical aspects of the physical side of radioisotope work. The acquisition of medical expe-

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From the Section of Therapeutic Radiology, Mayo Clinic and Mayo Foundation.

Read before the meeting of the Society of Nuclear Medicine, Seattle, Wash., May 29 and 30, 1954.

rience, however, is more difficult to obtain. An ideal time for a physician to acquire the necessary training in medical radioisotope work would be in conjunction with his residency training. During this period he should be willing to spend the necessary time to receive the training and necessary fundamental knowledge and experience to serve as the basis for his later practice.

If institutions that have an active radioisotope program in operation can arrange an adequate program for residents desiring such training, a supply of physicians trained in the medical aspects of radioisotopes will become available. Several institutions have established formal programs for residency training, many others supply such training informally, and many institutions equipped to do so have not as yet set up such programs.

At the Mayo Foundation a formal training program in radioisotopes has been offered for the past 18 months to fellows in radiology. These fellows are assigned to this service full-time for a period of three months. This period seems to be fully adequate when it is considered that these radiology residents have already received much of the theoretical material in radiation physics and have obtained practical experience in the clinical effects of ionizing radiations in their work with patients receiving radium or roentgen therapy. The objectives of this training program are to present to the resident the fundamental material regarding radioactivity and the properties of radiation, to teach him how to handle radioactive materials safely, to give him practical experience with the various measuring instruments, to let him participate actively in the administration of beta and gamma ray-emitting isotopes to patients and care for these patients after administration, and to impart the philosophy regarding clinical radioisotope practice held by the staff here. For purposes of discussion the curriculum may be divided into three main categories.

THEORETICAL PRINCIPLES

The theoretical principles are presented by means of lectures, demonstrations, and reading material. The main subjects are basic mathematics, units of matter, radioactivity, physical properties of radiation, biological effects of radiation, radiological safety, theory and use of measuring instruments, radiological units—dosimetry, and tracer methodology. Most medical residents have had little background in the mathematics pertaining to radioactivity. A short, uncomplicated, practical discussion of logarithms, exponents, and necessary statistics at the outset of the period is helpful for the understanding of the material to be presented later. The slide rule is almost a necessity for isotope workers. A short demonstration of the basic manipulations for multiplication and division plus the need to use the rule in his practical work will provide the stimulus for the trainee to learn the use of this valuable aid. Discussion of the fundamental nature of matter and radioactivity at a fairly elementary level is necessary and sufficient for the needs of these men. Too complex a presentation confuses the student with too many new concepts and may result in the retention of none. The approach to the properties of radiation is coordinated with that of the biological effects of ionizing radiations and radiological safety. It is in these latter two fields that this material will be used.

Discussion of the measuring instruments is accompanied by demonstration of the instruments and their operation. The advantages and limitations of the various types of instruments are stressed. Discussion of radiological units and dosimetry includes equivalent ionization and energy absorption units; biological, effective, and physical half-life; dosimetry of beta ray emitters; and dosimetry of gamma ray emitters. Tracer methodology is largely of use in research fields outside the scope of this training. A short discussion is included to show the resident that there are pitfalls in tracer methods and certain criteria to be met in designing experiments using radioactive isotopes. In addition, knowledge of the tracer method will enable him to advise his colleagues doing research concerning precautions to be taken in the use of isotopes, the possibility of radiation effects modifying the result, and estimation of radiation dosage delivered to the experimental material.

We have found the sound motion pictures produced by the Army Signal Corps in conjunction with the isotopes division of the Atomic Energy Commission to be a useful aid in presenting much of this material. The fact density in these films is great, and to obtain the greatest benefit they must be shown more than once and in conjunction with the lectures on the subject covered. These films are available on loan from the Army or may be purchased at a reasonable rate from a commercial firm. My colleagues and I have found the following films useful: Fundamentals of Radioactivity, Properties of Radiation, Practical Procedures of Measurement, Methodology, Principles of Radiologic Safety, and Practice of Radiologic Safety.

PRACTICAL APPLICATIONS

Some of the practical procedures carried out by the residents are identification of radioisotopes, calibration and use of measuring devices, preparation of radioactive material for assay, in vivo and in vitro assay of material containing radioisotopes, autoradiographic procedures, safety procedures, survey for radiation hazards, decontamination and waste disposal, and bookkeeping. It is of utmost importance that the trainee gain as much practical experience in the various radioisotope techniques as possible. Many of the more routine procedures of counting and assay are performed in the larger centers by technical personnel. However, there is as great a shortage of these technical personnel as there is a shortage of properly trained physicians and radiation physicists. It is probable that the resident will have to supervise the training of such personnel when he institutes his own program at a later date. His effectiveness in training such personnel will be greatly enhanced if he has practical experience with such procedures himself. A considerable portion of the resident's time during the training period is devoted to such work. He performs the routine procedures in use in the laboratories aided by the technician. Other widely used or accepted procedures not part of the routine in our laboratories are performed as laboratory exercises. An attempt is made to give the resident as comprehensive a basis as possible of various assay, preparation, and counting methods and experience in their use.

Considerable emphasis is placed on the safe handling of the various radioisotopes and the methods for achieving this. The efficiency of the various methods is brought out by exposure inventories of each step in each procedure used. When new procedures are considered, the resident helps to establish safe methods by doing radiation exposure surveys of the entire procedure. Our residents in radiology are most cooperative in the matter of radiological safety. They realize that they will be receiving exposure from fluoroscopic procedures, radium, diagnostic and therapeutic x-rays, and isotopes and are anxious to keep all such exposure to a minimum. This radiation exposure awareness among the residents has provided the stimulus for improved protection facilities and practice not only in the radioisotope work but in the other branches of radiology as well. The residents' constant evaluation and criticism of the methods in use have resulted in improvements in technique and reduction in exposure of personnel throughout the institution.

Orderly and systematically kept data are invaluable in calculations, in checking back for possible errors, and in following changes in the material being studied. The value of good bookkeeping becomes apparent to the resident as he performs his technical duties. In fact, the bookkeeping in our section has been greatly improved by the criticism and suggestions of our residents in training.

CLINICAL ASPECTS

Administration to human beings of potentially dangerous substances, whether radioactive isotopes or any other form of medicament, requires assessment of the possible benefits to be achieved against the possible damage to be encountered. In the case of radioactive isotopes, some of the potential benefits and dangers are known and some are not. Knowledge of the disease, the patient, the pros and cons of other methods of treatment, as well as the isotope method, all contribute to the decision of whether such treatment should be undertaken. Medical judgment cannot be taught. The responsibility of the preceptor is to impart as clearly as possible his reasoning in coming to his decision. The trainee then begins to form his own philosophy, based at first on that of his preceptor and on his reading and later modified as his own observations and experience are acquired.

In radioactive isotope training, just as in other training of medical residents, the ideal is to provide the trainee with the basic information, guidance, and experience so that he may draw on this material in his later practice to provide sound medical care to his patients. The trainee should consider the following clinical aspects with regard to the patient: (1) medical workup, (2) indication for the use of the isotope, (3) care after administration, and (4) evaluation of results. Regarding use of the isotope, the following aspects should be considered: (1) isotopes in general use—behavior in human beings, effects on disease processes, and limitations; (2) methods of administration; (3) survey of isotope distribution in patient; and (4) assay of isotope in excreta.

In practice the resident takes the history of the patient and examines him. He discusses the features of the case with the consultant and participates with him in the plan of treatment. He assists in the preparation, assay, and administration of the isotope and follows the patient in the postadministration period. It is our practice to assign a resident to a particular patient and to have him perform all the technical as well as medical work with that patient until the patient is dismissed. If possible he will also see the patient on follow-up visits, but, since the training period is short (three months), his follow-up experience is usually limited to seeing patients on whom other residents have worked. Weekly round-table discussions are held at which the problems presented by patients currently under observation are discussed, recent publications of interest are reviewed, and a short pertinent subject is presented.

Active clinical experience at the present time is confined to three isotopes. The residents learn the use of I^{131} for diagnostic tracer tests for thyroid function and for tracer evaluation of thyroid cancer suspects including survey and autoradiography. They learn the correct types of therapy of hyperthyroid states and of carcinoma of the thyroid, as well as therapy needed to produce myxedema in patients with extrathyroidal disease—for example, angina pectoris or pulmonary emphysema. They receive training in the use of P^{32} for treatment of polycythemia vera and for treatment of chronic leukemias. They learn the use of Au^{198} colloid for treatment of pleural and peritoneal malignant lesions.

During the three month period sufficient experience is usually accumulated in most of the foregoing categories. Therapy of thyroid cancer is an exception. There are very few patients with cancer of the thyroid who are suitable for a full-scale treatment program with I^{131}. In addition, the administration of such treatment may run into a period of several years. In such a situation the records of all patients in our series are carefully reviewed with the residents to give them an idea of how such treatment is carried out and the results achieved to date. In addition to the foregoing isotopes, both clinical and research work is being done using other isotopes. The residents are made aware of such work and urged to follow its progress to be aware of the scope, usefulness, and applications of these isotopes as a research tool. Should the resident desire to carry out a research project himself, facilities are available for such work. This, of course, requires the expenditure of more time than is allotted to the radioisotope training period. In the past, I think that the residents who have performed such projects have received more benefits from the increased time expenditure than has been lost by the forced neglect of other aspects of their training.

COMMENT

Clinical use of radioactive isotopes is rapidly changing and progressing. In the design of a training program, it is impossible to anticipate many of the possible uses to which radioisotopes may be put in the future. The purpose of the program outlined is to provide the trainee with the background and experience so that he may participate intelligently in the future development of this phase of medical practice. At the present time it seems necessary for residents to devote considerable time to such a training program. This is because of the introduction of many new disciplines and concepts to which they have not been exposed previously. However, the youth of today in grade school and college have knowledge of such things as Geiger counters, gamma rays, neutrons, and the like. Medical students are taught about the use of radioisotopes as routine research tools and as medical diagnostic and therapeutic agents. The residents of the future should have a much more comprehensive idea of these subjects, and the need for spending considerable time on the fundamentals will be gone. When that time comes, the radioisotopes will take their rightful (and less glamorous) place as routine agents of the physician.

200 First St. S.W.

THE PHYSICIAN'S RESPONSIBILITY TO MEDICAL ORGANIZATIONS

Everett C. Fox, M.D., Dallas, Texas

Hippocrates, the "father of medicine," is remembered in history not only for his contributions to medicine but also for his code of ethics and lofty ideals. Historically and traditionally, the physician has been dedicated to the service of his patients and has been a respected member of the community. The duties of a physician were quite simple: He took care of his patients as best he could. But in recent years, this has been changed for our generation of physicians and probably for future generations. We still assume our principal duties of the care of the ill but have been forced out of our traditional orbits into many spheres of activity. It has become necessary for us to become better informed and to exert a wholesome and constructive influence upon the economic, social, and political affairs of our community, state, and nation.

BROADER RESPONSIBILITIES TODAY

These necessary activities take much of the time and energy that the physician might devote to his patients. The physician of today has a great responsibility to his profession and should participate actively in the functions of his county, state, and national medical associations. Today, a physician must be well informed about medical, scientific, economic, social, and political problems and should be able to discuss them intelligently and articulately. He must devote considerable time to the duties of the committees of his county and state medical associations, to his hospital staff, community agencies, service clubs, and other organizations. I do not need to mention how arduous these tasks may at times become. Effective work on medical society committees such as voluntary health insurance, emergency call service, mediation, physician placement, public relations, and veterans' affairs may determine if your patients will receive as good medical care in the future as they have in the past. These new activities are part of our duty and responsibility to our patients. If we cannot keep medicine free, the ultimate losers will be our patients. We must lend every support to our voluntary hospital system, serve willingly and diligently on staff committees, and assist in the instruction of the intern and resident staffs and the nursing personnel.

The county and state medical associations have rendered great service in the study of these problems and have furnished many satisfactory and acceptable answers to the numerous issues confronting us. But the great burden of the study of many of the scientific, economic, and political problems must be at the national level. Only a few of us have recognized the importance and effectiveness of the many activities of the American Medical Association.

FUNCTIONS OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association, through its Board of Trustees, the House of Delegates, and its various councils and committees, has rendered a great public service to the American people by its constant alertness to the political and scientific problems presented and by its recommendation of sound, fair solutions for the welfare of the public, the advancement of scientific medicine, and the betterment of the public health. The A. M. A. represents more than 150,000 physicians from 53 states and territories and 2,000 county and district medical societies. The annual budget is over 9 million dollars, 60% of which is received from dues and subscriptions to THE JOURNAL. More than 5 million dollars is expended on scientific activities and over 2 million on public information and socioeconomic activities. The 190 members of the House of Delegates elected by the states, territories, and sections determine, activate, and supervise the policies of the A. M. A. They are the legislative body for the American physician.

Scientific Activities.—The major emphasis of the A. M. A. is upon scientific activities that are largely conducted by the Council on Scientific Assembly with its 21 sections, the Bureau of Exhibits, the Council on Medical Education and Hospitals, the Council on Mental Health, the Council on Industrial Health, and the Division of Therapy and Research, which includes the Council on Pharmacy and Chemistry, the Council on Physical Medicine and Rehabilitation, the Council on Foods and Nutrition, the several standing committees of these councils, the Committee on Cosmetics, the Bureau of Investigation, and the chemical and physical laboratories. The work of these councils is especially important in advancing the science of medicine. The outstanding reputation of the council members for specialized scientific knowledge and integrity is well recognized. They serve without remuneration and render unbiased decisions based on careful considerations of all available scientific evidence and expert opinion.

Socioeconomic Activities.—Every physician today must concern himself with the social and economic aspects of the practice of medicine as it reflects on the patient, the public, and the profession. The A. M. A. acts collectively for the individual physician in the socioeco-

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Chairman's address, read before the Section on Dermatology and Syphilology, at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

nomic field, which includes ethics, laws and legislation, medical service, economic research, rural health, and health education. The activities in these fields are carried out by the Council on Medical Service and its seven special committees that deal with medical care for industrial workers, relations with lay-sponsored voluntary health plans, prepayment hospital and medical service, extension of hospitals and other facilities, indigent medical care, federal medical services, and maternal and child care. The Council on Medical Service studies the social and economic changes in the practice of medicine and reports these changes, conducts surveys, and acts as an information center for the profession and the public. The Council on National Defense, the Council on Rural Health, the Judicial Council, the Bureau of Medical Economic Research, the Bureau of Health Education, the Committee on Legislation, the Law Department, the Department of Public Relations, and the Washington Office provide information for physicians and allied health agencies.

Publications and Related Activities.—The third important activity is the scientific publications. THE JOURNAL of the American Medical Association, established in 1883, publishes 165,000 copies weekly and is the most valuable medical publication in the world today. There are also nine special A. M. A. journals, including the *A. M. A. Archives of Dermatology.* In addition, the A. M. A. publishes the Quarterly Cumulative Index Medicus, the Standard Nomenclature of Diseases and Operations, New and Nonofficial Remedies, *Today's Health,* and the American Medical Directory.

Important related activities include the Women's Auxiliary, the Student American Medical Association, and the American Medical Education Foundation. More physicians should become financially acquainted with the last organization. Someone provides approximately $10,000 above the cost of each doctor's medical education. Physicians are now asked to return at least $100 annually, individually, to help provide for the financial support of the medical schools. The above lists of councils, committees, the House of Delegates, the officers, and the Board of Trustees of the A. M. A. represent about 500 physicians. These men are doing much of the effective work, study, and evaluation necessary to determine the policies, programs, services, and accomplishments of American medicine. They are dedicated to the purpose of the promotion of the science and art of medicine and of providing better medical care for the American people. They are elected representatives from state societies and scientific sections. Many other physicians have helped in the advancement of scientific medicine by developing our many special societies, colleges, and academies and by organizing and supervising specialty boards.

VOLUNTARY HEALTH INSURANCE

As physicians, we must accept our scientific and economic obligations to medicine, to medical education, and for the improvement of the medical care of our patients. We should give assistance to the development of the voluntary health insurance plans that now protect 100 million people from the major costs of illness, a cooperative effort of hospitals, insurance underwriters, and physicians in every state of the nation. Recent surveys reported to the American Hospital Association showed that, in 1940, 60% of the population favored government compulsory health insurance, while recent polls show this figure has decreased to 19%. Doubtless the effectiveness of the voluntary health insurance plans has strongly influenced this trend. This change of opinion occurred during an era when government was spending millions on propaganda for socialization. Since 1900, during part of this same period, scientific advances have increased life expectancy 20 years. We all realize that the cost of medical care has increased during a period of inflation, development of new drugs, increased usage of medical care, and increased demands for hospitalization. However, the U. S. Bureau of Labor Statistics shows that the consumer price index was 92% higher in 1954 than in 1935-1939, but medical care costs rose only 74% and physicians' fees only 60%. Private expenditures for medical care totaled 9.9 billion dollars in 1953, a 37% increase over 1948 according to reports by the Social Security Administration. In the five year period, voluntary health insurance benefits increased by 217% to 1.9 billion dollars and met 20% of the total medical bill, compared with 8.4% in 1948. Hospital insurance benefits were 455 million dollars in 1948 and 1.28 billion dollars in 1953; benefits for physicians' services were 151 million dollars in 1948 and 632 million dollars in 1953. The physician's portion of the medical care dollar has actually decreased since 1950.

Provision by the Veterans Administration for the care of veterans with non-service-connected illnesses, who utilize 85% of all VA beds, must have a better understanding by the public, service organizations, and the profession. The veteran with service-connected disabilities should have more and better medical care and more realistic disability payments for wartime injuries. Veterans with non-service-connected disabilities should provide their own medical care when financially able, as do other citizens, and should be a community responsibility when indigent. Social security as it affects the American people and the physician requires evaluation. Social security is a system that is neither social nor secure; advocated as insurance and as actuarially sound, social security is really a system of taxation and socialization. A system that pays $48 for one dollar of an individual's tax cannot be financially sound. Social security is not insurance; its benefits are federal gratuities paid from taxes. These and many other problems face the medical profession and the American public they serve. Physicians should be familiar with these problems and the effective policies developed for their solution.

LOCAL RESPONSIBILITIES

The physician should participate actively in his county medical society's program. He should be happy to give his time and skill to indigent medical care services. The physician's responsibility and opportunity as a citizen is important to every community. Individually and collectively, physicians are responsible for adequate medical care. They should use their ability in the development of community plans for adequate medical care. They must direct more attention to the social and economic relationships of medicine to society. A physician should have a community interest in and help develop churches, schools, chambers of commerce, health councils, and service clubs. The influence of the physician in his own community is enhanced by his interest and participation in community projects. Although he is a physician, he is also a citizen with the rights, obligations, and responsibilities of a citizen, and those rights, obligations, and responsibilities should be exercised. It is a civic duty to participate in the affairs of government.

THREAT OF SOCIALIZED MEDICINE

The suggestions presented today may require much additional time and work by many physicians. This extra time will still be devoted to patients through these social and economic activities. It is for our patients, the American public, that these tasks must be accomplished. They are the ones who will suffer the greatest if their freedom in medical care is jeopardized. The physician's basic and traditional responsibility to his patient will be advanced and maintained. The attempts to socialize medical care indicate the trend of many of our governmental agencies. The medical profession was merely the first section of the economy to come under the socialist's attack. If these measures are not resisted, they will involve industry, finance, insurance, transportation, agriculture, and education, as well as medicine.

The medical profession, through its medical organizations and with the aid of an aroused and informed public, refused to accept compulsory health insurance. If the recent trends of our national government are not changed and its paternalism, bureaucratic socialism, and one-world nationalism not restrained, all of our freedoms given by the Constitution and under the Bill of Rights will disappear. We should understand the social and economic conditions confronting us. The physician should develop a wholesome and constructive influence upon the medical, social, economic, and political affairs of his community, state, and nation.

318 Medical Arts Bldg. (1).

ESTROGEN GIVEN PARENTERALLY TO CONTROL EPISTAXIS AND HEMORRHAGE AFTER ADENOIDECTOMY

PRELIMINARY REPORT

Harold C. Menger, M.D., Brooklyn, N. Y.

The control of spontaneous bleeding is a problem familiar to all physicians. In rhinolaryngology epistaxis and hemorrhage following tonsillectomy and adenoidectomy are the two most common examples of this problem. The term "spontaneous hemorrhage" is used to define marked, sudden, and unexpected bleeding.[1] It does not imply that the hemorrhage is idiopathic, although the cause may not be determinable. Nor as it is used here does it refer to bleeding resulting from the rupture of a single vessel but connotes profuse oozing from the surface of the bleeding area, wherever it might be. Finding a simple, reliable solution for these common emergencies has taxed the ingenuity of the medical profession. To control spontaneous epistaxis, many schemes of therapy have been recommended, such as vitamins K and C, anterior and posterior nasal packing, penicillin, cautery, ice packs, thrombin and fibrin foam, and ligation of the external carotid artery.[2] In certain cases, one method or a combination of these treatments is successful. Other cases resist any attempted therapy and stop as enigmatically as they begin, leaving the patient in an exsanguinated condition and in rare cases even proving to be fatal. Immediately following adenoidectomy, spontaneous oozing, if recognized, usually can be controlled with packing.[3] In an occasional case this treatment is not effective; in many it is a difficult and complicated procedure; in all it is time consuming. The purpose of this article is to offer a relatively new approach to these problems. On the basis of the results in the series to date, it is felt that the use of parenterally given estrogen is the treatment of choice in spontaneous epistaxis and hemorrhage following adenoidectomy. This study was prompted by the work of Jacobson, who reported successful treatment of over 300 cases of spontaneous epistaxis with parenterally given estrogen.[4]

REPORT OF A CASE

In the study reported here the method was first tried on a 26-year-old male who presented himself in the emergency room of the hospital with the chief complaint of epistaxis of three days' duration. The bleeding had started spontaneously and resisted all attempts to control it at other hospitals and clinics. As the patient was in an obvious state of exhaustion and exsanguination, he was admitted and received a transfusion of 1,000 cc. of blood. The nose was packed anteriorly and posteriorly, and supportive therapy with vitamin K, vitamin C, Koagamin (aqueous solution of oxalic and malonic acids), penicillin, and ice packs was instituted. The profuse bleeding was stopped, but oozing continued. On the second and third hospital days it was necessary to change the anterior packing. On the fourth day after admission, because the patient was complaining bitterly about the posterior packing and there was evidence of slight ulceration of the soft palate, the packs were taken out. There was no bleeding for two hours; then the patient began to hemorrhage profusely from the nose and mouth. At this time 20 mg. of conjugated estrogens equine was administered intravenously. The bleeding stopped within one hour. Three days later a slight oozing began; again 20 mg. of estrogen was given

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Director, Department of Otolaryngology, Evangelical Deaconess Hospital.

The conjugated estrogenic substance, used in this study as Premarin, was supplied by Ayerst Laboratories, Inc., New York.

[1] Jacobson, P.: A Unified Concept of "Spontaneous Bleeding," Current M. Digest **21**: 30 (Nov.) 1954.

[2] Hallberg, O. E.: Severe Nosebleed and Its Treatment, J. A. M. A. **148**: 355 (Feb. 2) 1952.

[3] Lederer, F. L.: Diseases of the Ear, Nose, and Throat, ed. 6, Philadelphia, F. A. Davis Company, 1952, p. 743.

[4] Jacobson, P.: Spontaneous Hemorrhage: Clinical Entity, with Special Reference to Epistaxis, A. M. A. Arch. Otolaryng. **59**: 523 (May) 1954.

intravenously. In a half hour the bleeding stopped. Within a few days the patient was discharged from the hospital; there has been no more bleeding. Because of the blood picture the possibility of the patient's having an early leukemia was considered, but this diagnosis could not be substantiated. The etiology of the spontaneous epistaxis has not been determined.

EPISTAXIS

Nose bleeds may be primary or secondary, may be induced or spontaneous, or may or may not be pathognomonic. In the majority of patients they will stop spontaneously. This fact must be considered not only in treating patients but also in evaluating any type of therapy. In some cases a small ruptured vessel can be found; these cases are usually minor and are easily controlled. However, in the more serious cases, and in all cases of spontaneous hemorrhage, there is profuse bleeding from many vessels in the nasal mucosa. Like streams swelled by a sudden rainstorm, the vessels of the mucosa seem to overflow. As the bleeding stops, there is a recession and the vascular system of the nasal mucosa reverts to its normal condition with no evidence of the previous disturbance. The primary etiology of these hemorrhages is usually difficult to diagnose, and when a patient presents himself in such a condition the primary problem is to control the bleeding. Once this is accomplished, every effort should be made to determine the cause.

TABLE 1.—*Case Histories of Six Patients with Epistaxis*

Case No.	Age, Yr.	Sex	Duration of Bleeding, Hr.	Pertinent History	Possible Cause	Treatment	Time Lapse Between Estrogen Therapy and Control, Min.	Follow-Up, Time with No Recurrence
1	26	M	72	Admitted to hospital	None known	4,000 cc. blood; 3,000 cc. glucose; coagulants; anterior and posterior nasal packing; Premarin * intravenously	60	3 mo.
2	55	M	4	Treated in office	None known	Premarin intravenously	30	4 wk.
3	47	M	3	Blood pressure 195/100 mm. Hg; treated in office	Hypertension	Premarin intravenously	20	3 wk.
4	74	F	12	Treated in office	None known	Oxidized cellulose (Oxycel) packing; Premarin intravenously	30	4 wk.
5	30	M	..	Submucous resection 2 days prior	Removal of petroleum jelly gauze packing	Premarin intravenously	30	3 wk.
6	57	M	4	Blood pressure 190/110 mm. Hg; admitted to hospital	Hypertension	Anterior and posterior nasal packing; Premarin intravenously	180	3 wk.

* Premarin is a conjugated estrogenic substance.

Since the initial case, five more have been treated and controlled with intravenously given estrogen. Although in none of them was the bleeding as prolonged and as profuse as in the original case, the epistaxis in each gave the clinical impression that it would be very difficult to control with the usual therapy. Any case of epistaxis in which no bleeding point can be found, in which the bleeding is coming from the nasopharyngeal area, or in which the bleeding has been continuous for several hours demands active attention and therapy. Each of the cases in this study fills these criteria. The therapy was 20 mg. of intravenously administered estrogen. Table 1 summarizes the data. In cases 3 and 6, the epistaxis was associated with hypertension. In case 5 profuse bleeding was provoked by removing the petroleum jelly gauze packing, which had been inserted after the submucous resection. Four patients were treated in the office, one was admitted to the hospital because of exsanguination, and the other was hospitalized because of a history of hypertension with hemorrhage. All six cases have been closely followed, and in no case has there been a recurrence of bleeding.

HEMORRHAGE FOLLOWING ADENOIDECTOMY

Because of the similarity of the bleeding in epistaxis and the profuse oozing from the operative site that occurs in some patients after adenoidectomy, it was decided to evaluate the parenteral route of administration of estrogen in these cases. This type of bleeding at times may be difficult to control, and deaths have been reported from it. The advisability of classifying hemorrhage after a surgical procedure as spontaneous may be questioned; however, it is felt justified in this instance because the two most important factors contributing to bleeding after adenoidectomy were eliminated. First, the operation was done under direct vision with a palate retractor, and all visible adenoid tissue was removed; second, the patient was kept under anesthesia as short a while as possible. Open-drop administration of ether was used because as quick a recovery as feasible was desirable to remove the likelihood of occult bleeding that might not be discovered until the patient was in a critical condition. With the elimination of these two important factors, residual adenoid tissue and prolonged recovery, any bleeding was attributed to diffuse oozing from the vessels in the palatine mucosa.

The series reported on in table 2 contains 10 cases of young children who within six hours after completion of the operation developed significant bleeding from the operative site. A small amount of bleeding is not unusual after adenoidectomy. These patients, however, were bleeding profusely. The bleeding and coagulation times in all patients were within normal limits. Because of technical considerations it was decided to give the estrogen in these cases intramuscularly. Depending on the weight of the child, either 5 or 10 mg. was the selected dose, which was given deep into the gluteal muscle. Table 2 summarizes the case histories. Each patient was checked every 10 to 15 minutes after the administration of the estrogen to determine when the bleeding had stopped. With the exception of one case that was not completely controlled until two hours after *therapy, the bleeding stopped within one hour.* The uniformity of the results and the quick response rule out the possibility of coincidence and definitely demonstrate the value of parenterally administered estrogen.

COMMENT

Why the parenteral administration of estrogen stops spontaneous hemorrhage in cases of epistaxis and bleeding following adenoidectomy is not known. At the present time it is empirical therapy. Estrogen in the management of cases of spontaneous hemorrhage was first used in the treatment of functional uterine bleeding. The female hormone appears to support the vascular integrity of the blood vessels of the endometrium. When the blood level of estrogen is markedly decreased, these blood vessels tend to rupture and bleed. The administration of estrogen stops the bleeding, probably through a reversal of this phenomenon. Estrogen may have a similar effect on other blood vessels in the body and in this manner control bleeding from other sites. A second explanation may be a beneficial effect of estrogen on the clotting mechanism of the body. Working through an enzyme system, it may either speed up the clotting process or provide some missing factor. Parenterally given estrogen has been shown to lower abnormal bleeding times in newborn infants.[5] A third explanation is the possibility that estrogen stimulates the release of thrombocytes into the blood stream. This was suggested by the blood picture of the initial case in this series. On the day before estrogen was given parenterally, the thrombocyte count was 180,000 per cubic millimeter; on the day after, the thrombocyte count was 340,000 per cubic millimeter. The possibility that this increase in platelets was produced by the blood transfusion given in the interim between the two counts was considered. But when the red blood cell counts on these two days were compared, it was noted that on the day prior to the therapy the red blood cell count was 3,150,000 per cubic millimeter; on the day after, 3,250,000 per cubic millimeter. There was, then, obviously a relative increase in the thrombocyte count. The possibility of such a property of estrogen should be considered; however, this finding in just one case is only suggestive and in no way offers proof.

TABLE 2.—*Hemorrhage Following Adenoidectomy*

Case No.	Age, Yr.	Sex	Post-operative Time of Onset, Hr.	Dose of Parenterally Given Estrogen, Mg.	Time Lapse Between Therapy and Cessation of Bleeding, Hr.
7	3	M	3	5	¾
8	6	F	4	10	1
9	5	M	5	10	½
10	7	F	1	10	½
11	7	F	4	10	1
12	4	M	3	10	1
13	6	M	3	10	1
14	5	F	2	10	1
15	4	M	6	5	1
16	6	M	¾	10	2

The significance of determining a simple reliable method of controlling spontaneous bleeding in epistaxis and hemorrhage following adenoidectomy is obvious. These two emergencies are important contributors to the rates of morbidity, and even mortality, in otorhinolaryngology. Furthermore, the strong possibility that the parenteral administration of estrogen may prove to be an important factor in control of other sites of spontaneous hemorrhage must be entertained. Value of parenterally given estrogen in managing cases due to one determinable bleeding point is not within the scope of this study. A comparison of the cases of epistaxis, in which the estrogen was given intravenously, and the cases of hemorrhage following adenoidectomy, in which estrogen was given intramuscularly, shows that the time interval was relatively the same. In no case were there any side-effects from the therapy. The results of the study were extremely gratifying. In no instance was their failure. Furthermore, the *uniformity of the response* rules out the possibility of coincidence and offers important evidence that parenterally given estrogen in some manner controls spontaneous bleeding. The evidence offered by this series of cases is too small to be considered conclusive. However, the fact that the parenteral administration of estrogen effectively controlled 6 cases of profuse epistaxis and 10 cases of severe, spontaneous hemorrhage after adenoidectomy is of extreme importance. It is hoped that future work with larger series of cases and more varied problems will substantiate the results of this series.

SUMMARY

Sixteen cases of spontaneous epistaxis and hemorrhage following adenoidectomy were treated with parenterally administered estrogen. The response in all cases was dramatic, and in only three cases was the length of time between the administration of the medicament and the cessation of bleeding over one hour. The consistency and rapidity of response rule out the possibility of automatic cessation and coincidence. Three possible mechanisms of action of estrogen are considered, but besides the passing evidence that estrogen may stimulate the release of thrombocytes, this study does not contribute any information toward the solution of the enigma. Even though the therapy at the present must be considered empirical, the effectiveness of parenterally given estrogen and the control of spontaneous epistaxis and bleeding following adenoidectomy offer strong evidence that merits serious consideration. It is hoped that future studies will not only confirm this series but also demonstrate the value of this therapy for other types of spontaneous hemorrhages.

202 Weirfield St. (21).

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[5] Hirst, J. C.: Influence of Female Sex Hormone upon Blood Coagulation of Newborn, Am. J. Obst. & Gynec. 26:217 (Aug.) 1933.

LUMBAR TRACTION THERAPY—ELIMINATION OF PHYSICAL FACTORS THAT PREVENT LUMBAR STRETCH

Bernard D. Judovich, M.D., Philadelphia

Traction is a widely employed procedure in low back and/or sciatic pain, particularly in the conservative treatment of herniated intervertebral disks. The method usually consists of weight applied to a pelvic belt or to the lower extremities, with an average of 10 to 15 lb. on each side, usually a maximum total of 30 lb. This weight is completely neutralized or dissipated as a stretch force because of surface traction resistance of the lower body segments. These findings negate the concept that this method of traction therapy is of any value as a lumbar stretch force or that it is of any value as a stretch force in "overcoming muscle spasm" of the lumbar spine. Its chief virtue, apparently, is to confine the patient to bed. In a recent report,[1] physical evidence was presented to demonstrate that, when hanging weight traction is applied to the lower body segment, pull or stretch force does not reach the lumbar spine and its surrounding tissues and that this method is of no value as a longitudinal stretch force to the lumbar spine. This report deals with the physical aspects of lumbar traction, and no attempt is made to evaluate the effect of such therapy.

ASCENDING FORCE DISSIPATION

When traction is applied to the lower extremities, the weight required to apply stretch will vary according to the level at which stretch force is desired. The higher the segment in which stretch force is desired, the more weight will be necessary. Traction loses its effect as upper levels of body segments are reached. For example, 5 lb. would cause a stretch in the ankle but little in the knee and 10 lb. of traction would cause a stretch at the knee but little at the hip. Fifteen pounds may provide some stretch at the hip joint but none in the lumbar spine. This progressive requirement of increased traction force as upper segments are reached is due to surface traction resistance of the combined lower segments. Important factors that create and modify surface traction resistance are: (1) the area of surface contact of the body or body segments; (2) the weight of the body or body segments; and (3) the quality, contour, and texture of the contacting surfaces. In lumbar traction, surface traction resistance may be defined as the horizontal dragging force necessary to overcome these combined factors. All applied weight that does not exceed the surface traction resistance of segments below the lumbar spine is without lumbar stretch effect. After these resistance factors are overcome, only adequate additional weight will have a stretch effect upon the lumbar spine.

STUDIES AND OBSERVATIONS

In order to determine the surface traction resistance of the body and its segments, a cadaver and three live subjects were studied. The details of this study have been previously described.[1] Under uniform conditions weight was applied until it exceeded the surface traction resistance of the body, the excess weight being recorded upon a scale and head-halter attached to the head of the bed. The cadaver was then sectioned transversely through L3–L4 interspace. Leg and pelvic traction was again applied and recorded. Both hip joints were disarticulated, and surface resistance of the lower extremities and pelvis were measured. The knee joints were disarticulated, and traction resistance of the lower segments were measured. In the cervical spine it can readily be observed that no stretch will take place with 5 lb. of hanging weight. Actual figure was 6 lb. of dissipated force.

The forces necessary to overcome surface traction resistance, under the conditions described, whether it be the whole body, cadaver or living subject, or body segments, are approximately the same—they average 54% of the weight. Tone and elasticity of tissues appear to have no practical bearing upon the required force. The lower body segment (L3–L4 interspace) composes almost half (49%) of the entire body weight. Since the lower body segment is almost half the body weight and requires 54% of its weight to overcome its own resistance, 26% of the entire body weight is calculated as an approximate average figure for the force necessary to overcome the lower segment resistance. The 26% of the total body weight that is required to overcome the surface resistance of the lower body segment is designated as the dissipated force factor. This force is completely neutralized and lost as a stretch force to the lumbar spine. The only traction force that could have any lumbar stretch effect is that which exceeds the amount needed to overcome the surface traction resistance of this segment. The force required with pelvic traction is the same as that with Buck's extension. In one instance the lower body segment is being pushed and in the other being pulled to the foot of the bed. The Trendelenburg position with a 6-in. elevation of the foot of the bed yielded only a 5% increase in countertraction. This increase in countertraction produced by the Trendelenburg position is not worthwhile in view of the resultant dependent headache and the anxiety produced by unnatural position for prolonged periods. When sufficient weight is applied to cause the body to shift slightly toward the foot of the bed, an illusion of end-point weight is created. This is due, however, to the shearing deformity of the mattress. With a resilient sponge rubber mattress, this will occur with much less weight.

From the Pain Section, Department of Neurology, Graduate School of Medicine, University of Pennsylvania.

Dr. L. Richard Schumacher assisted in this study.

[1] Judovich, B. D.: Lumbar Traction Therapy and Dissipated Force Factors, Journal-Lancet **74**: 411-414 (Oct.) 1954.

[2] Judovich, B. D.: Herniated Cervical Disc: New Form of Traction Therapy, Am. J. Surg. **84**: 646-656 (Dec.) 1952. Judovich, B. D., and Bates, W.: Pain Syndromes: Diagnosis and Treatment, ed. 4, Philadelphia, *F. A. Davis Company*, 1953. *Shenkin, H. A.: Motorized* Intermittent Traction for Treatment of Herniated Cervical Disk, J. A. M. A. **156**: 1067-1070 (Nov. 13) 1954.

The therapeutic results of lumbar traction have not been nearly as dramatic and satisfactory as those often obtained with heavy cervical traction.[2] This can be partially explained by the lighter structures of the cervical spine, the satisfactory countertraction of the body weight, and the smaller loss due to surface traction resistance. In the past, it had been my practice to administer an average of 60 to 80 lb. of pelvic traction, using a motorized intermittent traction apparatus. Present findings reveal that in the average patient, the first 40 to 45 lb. were being lost as a lumbar stretch force, so that actually only 20 to 40 lb. of traction were obtained. This amount, although sufficient for the cervical spine, would appear to be inadequate for the lumbar spine with its comparatively dense structures.

ELIMINATING RESISTANCE OF THE LOWER BODY SEGMENT

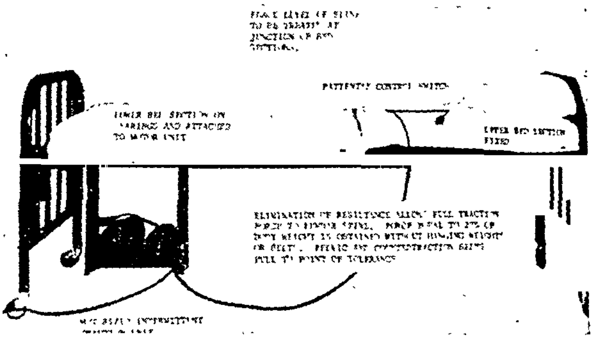
Lower body segment resistance can be totally eliminated in the following manner. A bed is built in two sections: the upper is fixed and the lower is mobile upon roller bearings and is transported by a motorized intermittent traction unit (see figure). Each section has its mattress. With the sections closed, the patient is placed supine upon the bed, with the lower spine at the junction of the sections. The resistance of the lower body is no longer a factor since it is transported mechanically. The force exerted at the lower spine is equivalent to the countertraction value of the upper body segment. This is approximately 27 to 28% of the total body weight (54% of 49% of total body weight). This entire force is exerted at the bed split and is obtained merely by lying upon the bed without weight or belts. Should greater traction force be desired a pelvic belt is attached to the lower edge of the moving section, and a countertraction belt is attached to the upper bedposts. In this manner unlimited traction force can be obtained. Hanging weight traction without the use of a motorized mechanism can be obtained with only a loss of 2 or 3 lb.

Body and Body Segment Weights

Segment	Weight Lb.	(Kg.)	%
Whole body	118	(53.5)	100
Lower body segment (L3-L4)	58	(26.3)	49.2
Pelvis	25	(11.3)	21.2
Lower extremities (hip disarticulation)	16.5	(7.5)	13.9
Thigh	10	(4.5)	8.5
Leg and foot (knee disarticulation)	6.5	(2.9)	5.5
Head and neck (C6-C7)	10	(4.5)	8.5

SUMMARY

Live subject and cadaver studies reveal that the average surface traction resistance of the body in a hospital bed is approximately 54% of the total body weight. The lower body segment (transverse section through L3–L4 interspace) weighs approximately 49% of the total body weight. It also requires approximately 54% of the weight of the lower body segment to overcome its own surface traction resistance. This is equal to approximately 26% of the total body weight. The force, therefore, that is dissipated with leg or pelvic traction is approximately 26% of the entire body weight. Only adequate weight in excess of this amount has a stretch effect upon the lumbar spine. There is progressively increased force dissipation ascending to higher body segments. Present methods of constant weight traction therapy to the lumbar spine are by far inadequate and produce no stretch effect upon the lumbar spine or its surrounding tissue. This is due to the fact that insufficient pull is applied to overcome the surface traction resistance of the lower body segment. The concept that hanging weight traction to the legs or pelvis provides stretch, or that it overcomes lumbar muscle spasm by such stretch, is, in view of the physical findings presented, without foundation. A method I have devised for overcoming surface traction resistance of body segments allows minimal weight to produce stretch at desired body levels. No attempt has been made at this time to evaluate the effect of traction therapy upon the lumbar spine.


PLACE LEVEL OF SPINE TO BE TREATED AT JUNCTION OF BED SECTIONS.
LOWER BED SECTION ON BEARINGS AND ATTACHED TO MOTOR UNIT
PATIENT'S CONTROL SWITCH
UPPER BED SECTION FIXED
ELIMINATION OF RESISTANCE ALLOWS FULL TRACTION FORCE TO LUMBAR SPINE. FORCE EQUAL TO 27% OF BODY WEIGHT IS OBTAINED WITHOUT HANGING WEIGHT OR BELTS. PELVIC AND COUNTERTRACTION BELTS PULL TO POINT OF TOLERANCE
MOTORIZED INTERMITTENT TRACTION UNIT

Bed for eliminating resistance of lower body segment.

2006 Delancey Pl. (3).

Gangrene Following Intravenous Therapy.—Apparently neonatal spontaneous gangrene is especially referable to long and difficult labor. All cases of infant gangrene appear to be associated with infection. . . . Particular care should be given to those infants with severe general sepsis, cachexia, and poor tissue nutrition. Lowered resistance in infections is undoubtedly one cause of poor vasomotor response in infants and contributes to ultimate local tissue death even when the outcome is not fatal to the child. Every aseptic safeguard should be exerted against inviting local infection by careless procedure and thus overburdening the already critically ill infant. Careful handling of tissues for venipuncture is necessary, and especially for incision over a vein, which is imperative not only to prevent infection but to prevent accidental severance of an artery. The vessels should be exposed meticulously, with gentle introduction of the needle or polyethylene tube. . . . Before intravenous therapy is instituted for the sick infant, one should weigh the status of the cardiovascular system and proceed cautiously in the face of any observable signs or deducible implications of circulatory disturbance or inadequacy; for example, the age of the child is indicative, for the younger the sick infant the greater the hazards of emboli or thrombosis. Vasomotor instability of the tissues invites infection, gangrene, and death of tissues or even of the child. Both dehydration and overhydration are dangerous. Of the two . . . overhydration is the greater danger.—D. S. Miller, M.D., Ph.D., and R. Sebeck, M.D., Gangrene of the Extremities in Infants Subsequent to Intravenous Therapy, *A. M. A. American Journal of Diseases of Children,* August, 1955.

TWENTY-FOUR HOUR MEDICAL ANESTHESIA COVERAGE FOR OBSTETRIC PATIENTS

John J. Bonica, M.D.
and
George H. Mix, M.D., Tacoma, Wash.

During the past two decades there has been a greater appreciation of the importance of good obstetric anesthesia by most physicians who care for parturient women.[1] It is now fully realized that if maternal and fetal mortality and morbidity are to be reduced further, it is essential that women in labor receive the best service that modern anesthesiology is capable of supplying.[1c] Certainly there is no justification for the misconception that obstetric anesthesia is a relatively simple procedure that requires less skill than the administration of surgical anesthesia. On the other hand, there is a great deal of evidence to indicate that the administration of anesthesia for obstetric procedures is often more complex and requires more skill than do many surgical operations.[2] In addition to the fact that two lives are involved instead of one, it is necessary to consider that special mechanical and physiological problems of pregnancy reduce the flexibility and margin of safety in the choice and use of certain methods of anesthesia. Moreover, women in labor frequently cannot be prepared properly and consequently present the additional hazard of aspiration of gastrointestinal contents. Medical complications such as the toxemias, as well as the irregular fashion in which these patients receive medication, constitute additional problems that often tax the efficiency of the obstetric team and that justify the thesis that obstetric anesthesia deserves the interest of the expert anesthesiologist.

Unfortunately, all too frequently this phase of medical practice is relegated to someone who is relatively inexperienced or who has only a casual interest in this field. It has long been the custom to assign the least experienced anesthetist and the oldest anesthetic apparatus to the delivery room. In some instances, interns and residents in obstetrics and even an obstetric nurse without any training in anesthesiology are requested to administer the anesthetic. Investigation reveals that in many institutions obstetric anesthesia remains an unwanted and, therefore, a neglected portion of the broad fields of anesthesiology.[3] Some of the best hospitals in this country provide their parturients with a quality of anesthetic service that would never be tolerated in their operating rooms.

There are several reasons for this state of affairs, not the least important of which is the fact that until recently there has been a general scarcity of trained anesthesiologists. Moreover, the lack of interest demonstrated by some teachers has caused many anesthesiologists to finish their training with a passive attitude and with a notable lack of interest toward this phase of anesthesiology. Some anesthesiologists in private practice, while admitting the importance of obstetric anesthesia, avoid as much as they can this important responsibility. They justify this attitude by pointing out that because of its emergency and unpredictable nature obstetric anesthesia encroaches unduly upon the time of the anesthesiologist and interferes with his surgical anesthesia practice. It is argued that it is physically unfeasible to give complete anesthesia coverage to the obstetric department and still run an active surgical schedule. A further pertinent reason given for the depreciation of the importance of obstetric anesthesia is that the financial remunerations frequently are not commensurate with the services rendered.

It is the purpose of this paper to demonstrate that it is feasible in every respect to provide a 24-hour medical anesthesia service to obstetric patients by describing the organization, development, and functioning of a particular group that practices in a 215-bed private hospital wherein approximately 2,500 deliveries are performed each year. In discussing the organization and development of this phase of our practice, mention will be made of the factors that are important in making such services not only feasible but also practical and that work to the best advantage of all concerned.

PLAN OF ORGANIZATION AND FUNCTION

In order to provide a proper perspective of this subject, it is necessary to describe briefly the plan of organization and function of a group of anesthesiologists that provides service not only to the hospital under discussion but to several other institutions in Tacoma. This group had its inception in January, 1952, when one of us (J. J. B.) resigned as a hospital-employed anesthesiologist and entered private practice. During the ensuing four years there has been an evolutionary growth of the group. For several months after its inception we continued to rely on nurse anesthetists to provide the majority of the obstetric anesthesia. As the demand for medical anesthesiologists became progressively greater, technicians were replaced by physicians who had completed their training or were in the process of doing so. This trend was promoted and encouraged because it was believed that in order to discharge properly all of the duties and obligations associated with the anesthetic management of obstetric patients, it is necessary to have

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From the Department of Anesthesiology, Tacoma General Hospital.

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[1] (*a*) Cartwright, E. W.: Choice of Anesthesia for Normal Delivery, J. A. M. A. **145**: 1111 (April 14) 1951. (*b*) Lund, C. J.: Choices of Analgesics During the First Stage of Labor, ibid. **145**: 1114 (April 14) 1951. (*c*) Whitacre, R. J., and Cressman, P. G.: *Choices of Anesthesia for* Operative Vaginal and Abdominal Delivery, ibid. **145**: 1118 (April 14) 1951. (*d*) Lull, C. B., and Hingson, R. A.: Control of Pain in Childbirth: Anesthesia, Analgesia, Amnesia, ed. 1, Philadelphia, J. B. Lippincott Company, 1944. (*e*) Siegler, S. L.: The Obstetrician's View of Modern Anesthesiology, New York J. Med. **49**: 1538 (July) 1949. (*f*) Hellman, L. M.: Factors Influencing the Choice of Anaesthetic and Analgesic Methods in Obstetrical Practice, Sharp & Dohme Seminar **17**: 3, 1955.

[2] Footnotes 1*c*, 1*d*, and 1*e*.

[3] Webb, E., and Leigh, M. D.: *The Private Group Practice of Anesthesiology,* Anesth. & Analg. **32**: 199 (May, June) 1953. Bonica, J. J.: Unpublished data.

the background of a physician. It is for this reason that in recent years it was preferred to use residents to help during the transition period. At the present time the group consists of seven anesthesiologists, of whom three are diplomates of the American Board of Anesthesiologists and the rest have finished the required training. In addition, there are eight residents in various states of training and three interns who are on the anesthesiology service for a minimum of six weeks. Of this group four attending anesthesiologists and four to five residents are assigned to Tacoma General Hospital, where they provide all of the anesthesia service. This hospital cares only for private patients and has five operating and three delivery rooms. In 1954, 3,379 surgical operations and 2,359 deliveries were performed.

On a typical day three or four of the attending anesthesiologists and four of the residents will be on duty until the elective surgical schedule is completed. Since usually only four of the five operating rooms are used at any one time, there are usually three anesthesiologists available for obstetric service, even at the height of the surgical schedule. Although it varies with the types of surgical operations, in most instances at least two of those attending are available to administer obstetric anesthesia. These people may be located in the surgical pavilion if they are needed to supervise the resident, but if there is any activity in the obstetric pavilion they are usually found there. In any case, the operating rooms are in such close proximity to the obstetric pavilion that an anesthesiologist is available within a matter of seconds for consultation or to administer an urgent obstetric anesthetic.

After the elective surgical schedule is completed, at least three anesthesiologists are available for obstetrics and emergency surgery. In actuality an even greater number of anesthesiologists are available for the greater part of the day because after the schedule is completed, postoperative and postpartum rounds, the teaching program, and other administrative duties keep most of the personnel in the hospital. The three individuals on call usually consist of one attending anesthesiologist, one second year resident, and one first year resident. The attending anesthesiologist remains in the hospital until late in the evening and either administers the anesthetics himself or supervises the resident, depending on the particular circumstances. In this way, the residents receive personal instruction and direct supervision not only in inhalation and saddle block anesthesia but also in various types of highly technical procedures such as single or continuous segmental peridural and caudal blocks. Moreover, an effort is made to inculcate the importance of obstetric anesthesia and to imbue the residents with the enthusiasm that is necessary to accept this phase of practice. If there is no activity in the labor room, the attending anesthesiologist then goes home but remains on consultation call for all cases. During the night the anesthesiologist on first call sleeps in one of the rooms on the obstetric floor so that he or she is available within two or three minutes. The anesthesiologist on second call also remains in the hospital.

If more than three anesthesiologists are needed for emergency obstetrics and surgery, the person on first and second call in one of the other hospitals can be summoned to help. This is rarely the case because the amount of emergency surgery in this hospital is relatively small. This call schedule may be considered rigorous by some because each anesthesiologist is on call approximately every third night, but we do not find it difficult since the person on first call is off the next morning; the person on second call may be called once or twice during the night, while the person on third call is not usually called after midnight except for consultation or in the event of complications.

Whenever possible, the obstetric patients are seen before the administration of anesthesia because this affords the anesthesiologist the opportunity to obtain a history, particularly regarding previous anesthesia, and to discuss the type of anesthesia that is to be used, and, what is even more important, to give him an excellent opportunity to develop rapport. The patient is individualized for the choice of the anesthetic, and the decision is made after consultation with the obstetrician. We do not try to "sell" patients on any particular type of anesthesia unless circumstances warrant the use of a specific method. Although we favor regional anesthesia, we realize that many patients psychologically are not candidates for it. Since the members of the group are capable of administering all types of anesthesia equally well, we are able to offer a wide choice of methods. The decision as to the optimum time of initiating analgesia is usually made by the obstetrician, although in many instances it is left to the anesthesiologist, especially when a continuous block is to be used. All patients with regional blocks are attended by a member of the anesthesia department. Frequently one anesthesiologist attends several patients in the lying-in room who are receiving continuous blocks, but during the delivery each patient is attended by an anesthesiologist.

In addition to the administration of analgesia and anesthesia, the anesthesiologist supervises the administration of restorative fluids and drug therapy as indicated by the changing medical status of the mother. Moreover, he assumes the care of the newborn infant so that the airway is cleared immediately, the stomach is aspirated, and good oxygenation is secured promptly and continued until the infant breathes spontaneously. During the postpartum period daily rounds are made and the anesthesiologist takes an active part in the prevention and treatment of postanesthetic complications and in the management of respiratory problems in the infant. We deem it especially important to see these patients daily until they leave the hospital because this is not only proper anesthesiologic practice but also good public relations.

PUBLIC RELATIONS PROGRAM

In order to improve further our relations with obstetric and surgical patients, we have embarked on a long-range public relations program that requires the constant and unrelenting efforts of every member of the group, the obstetrician or surgeon, the nursing staff, and the hospital administration. The obstetricians have cooperated by informing patients about the department and emphasizing the advantages of medical anesthesia. The hospital administration also mails a booklet of information concerning the department of anesthesia along with other literature that is intended to inform the prospective patient about the hospital. Great emphasis is laid to proper deportment of the anesthesiologist during the postpartum visit to make the patient realize that he is a member of the obstetric team. It is a strict rule among our group that attending anesthesiologists avoid visiting patients in hospital garb but must wear street clothes, lest the patient mentally will categorize the anesthesiologist as one of the house staff. Moreover, every postpartum patient is seen by the director of the department of anesthesiology or one of the attending anesthesiologists. In addition to improving public relations, it affords us an excellent opportunity to obtain a perspective of our efforts.

Another important facet of our public relation program involves the frequent orientation of the nursing staff and the nonprofessional hospital staff, particularly those who work in the front office. With the cooperation of the director of nursing, we have been able to indoctrinate the student and graduate nurses with the importance of medical anesthesia. Our efforts in this regard are reflected by the excellent cooperation we obtain in the obstetric pavilion and on the wards. The nursing staff manifests a similar attitude and respect toward the members of our department as they do toward the obstetricians and thus imbues the patient similarly.

With this program we have encountered very little difficulty in making the patients reealize that they have received a specialized service. Moreover, this has facilitated the transition from hospital practice to private practice of anesthesiology. Patients are billed directly on a fee-for-service basis by our office, which is in a medical center located away from the hospital. All patients are sent a bill except those who have insurance with two local medical groups. We charge a basic fee for the administration of anesthesia for the second and third stage of labor. This fee, which is based primarily upon the fact that a professional service has been rendered, was decided upon by determining the duration of the average obstetric anesthesia in the hospital and what it would have cost the patient in former years when the anesthesia was administered by technicians. If prolonged blocks are administered during the first stage of labor, the fee is increased slightly for each additional hour, with a ceiling charge equivalent to four hours of anesthesia. In addition, the patient is charged a very nominal fee by the hospital for the use of drugs and equipment. At the present time it costs the patients an average of $5 more than it did for technician anesthesia. We feel that this augmentation in the over-all obstetric anesthesia fee, which represents an increase of less than 2% of the total bill in the delivery, is insignificant in view of the better services rendered and must be considered as inexpensive insurance for the added safety to mother and infant. This fact is further emphasized when it is realized that the majority of the obstetric patients pay less for their anesthesia than a patient who receives anesthesia for an appendectomy.

The fee is the same whether the attending anesthesiologist or resident gives the anesthetic. This was done in order to standardize our fees as much as possible. To obviate criticism that might be made because the patients who receive an anesthetic administered by the resident alone are billed by the group, several facts may be mentioned. Firstly, the attending anesthesiologist is available for consultation call at all times. Secondly, all expenses incurred with the residency training program, including the resident's stipend, room and board, books, and expenses involved in attending meetings and obtaining guest lecturers, are paid by the group.

COMMENT

It is generally conceded that the contribution made by the rapidly developing science of anesthesiology constitutes one of the most important factors that has made possible the great advances in surgery during the past quarter of a century. Unfortunately, the same cannot be said in regard to obstetrics. While it should be readily admitted that many of the improvements in anesthetic practice have been applied to obstetrics, the contributions in this field have not been commensurate with the progress made in anesthesiology. This is especially true in regard to the administrator, a factor that, in the final analysis, is the most important to be considered. Most of the interest in obstetric anesthesia has been focused on refinement in techniques and producing better agents, but relatively little has been written or done to encourage the development of expert administrators. It serves little purpose to discuss the selection of methods of anesthesia unless there is a corresponding effort to encourage the application of these methods with the best judgment and greatest skill. A further reduction in the mortality and morbidity in obstetric anesthesia will depend to an increasing extent on the ability of the anesthesiologist and his active participation on the obstetric team to the same extent as he participates on the surgical team.[1f] Both the anesthesiologist and obstetrician must share the blame for the fact that this is not the case at the present time.

The obstetrician has been at fault for accepting, in many instances, the barest minimum of anesthetic service at the hands of the most uninformed and the least useful person in the delivery room, whereas in his gynecologic practice he would be satisfied only with the services of an expert anesthesiologist.[1e] The obstetrician should encourage and even demand that the department of anesthesiology be organized to give the obstetric service expert administration of any type of analgesia or anesthesia, any time it is desired. If anesthesiologists cannot offer such techniques as caudal, peridural, or subarachnoid blocks as a regular service, it is inevitable that they will be unavailable when most needed. The obstetrician deserves the benefit of the anesthesiologist's skill in the management of patients whose lives are threatened by hemorrhage, toxemia, or other complications, as well as in those abnormal conditions that might interfere with the lifeline of the fetus, such as prolapsed cord, prolonged labor, eclampsia, dystocia, and premature separation of the placenta. Moreover, he should derive the benefit of the anesthesiologist's skill in the management of asphyxia neonatorum and expert knowledge of depressant drugs and be able to rely on the latter to observe and evaluate the many and varied regimens of sedatives, narcotics, and amnestic drugs recommended for the first stage of labor. The obstetrician should have the interested and informed cooperation of the anesthesithe background of a physician. It is for this reason that in recent years it was preferred to use residents to help during the transition period. At the present time the group consists of seven anesthesiologists, of whom three are diplomates of the American Board of Anesthesiologists and the rest have finished the required training. In addition, there are eight residents in various states of training and three interns who are on the anesthesiology service for a minimum of six weeks. Of this group four attending anesthesiologists and four to five residents are assigned to Tacoma General Hospital, where they provide all of the anesthesia service. This hospital cares only for private patients and has five operating and three delivery rooms. In 1954, 3,379 surgical operations and 2,359 deliveries were performed.

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The provision of such services is a responsibility of the specialty of anesthesiology. Anesthesiologists must devise ways and means of satisfactorily solving the problem of providing round-the-clock anesthesia service to the obstetric department. One of the best methods of discharging this important obligation in a private hospital is for the anesthesiologists to practice as a well-organized group on a physician-patient, fee-for-service basis. Several years of experience with this form of practice have demonstrated that everyone involved benefits therefrom. The patient is provided with expert anesthesia at reasonable fees while the obstetrician may expect more efficient and more capable service and patient care. The availability of such expert services on a 24-hour basis facilitates the hospital administration and enhances the reputation of the hospital, thus greatly improving its over-all care. The most significant advantages accruing to the anesthesiologist working within the framework of such a group are that he is able to provide better services and to have more regular hours with a definite call schedule to allow time for study, teaching, and recreation. It is true, of course, that there is still a shortage of anesthesiologists and such an arrangement as herein described is obtained by an evolutionary process that requires the concerted effort and cooperation of anesthesiologists, obstetricians, hospital administrators, and the nursing staff. During the transition period, it may be necessary to use personnel other than trained physicians. However, the ultimate goal must remain the coverage of the obstetric department at all hours by expert anesthesiologists.

SUMMARY AND CONCLUSIONS

In recent years there has been an increasing awareness of the importance of anesthesia in obstetrics. Teamwork and cooperation between anesthesiologist and obstetrician are the prerequisites for optimal results in producing adequate pain relief for the mother, without detrimental effect to the infant. It is essential, therefore, that anesthesiologists take a more active part in the management of patients in labor notwithstanding their relative scarcity. It is an obligation that rests squarely on the shoulders of this group to devise ways and means of providing the anesthetic services that the patient, her infant and the obstetrician deserve. The private group practice of anesthesiologists is one of the best means of attaining this goal. The most important advantage of such a group is that it can offer complete, expert anesthesiologic care In addition to the selection and administration of the anesthetic best suited for the individual patient, the anesthesiologist offers his expert service for the care of th newborn infant during the neonatal period, especially i resuscitative measures are necessary. In addition, he ca assist the obstetrician during the postpartum period t prevent or treat complications that may be related to th anesthetic. Moreover, the anesthesiologist's extensiv experience with subnormal states of respiration and circulation may be applied to the safeguarding of the newborn infant during the critical first 24-hour period.

CONTRIBUTIONS OF THE DOCTOR OF PHYSICAL MEDICINE AS A HOSPITAL DIAGNOSTICIAN

Leslie Blau, M.D., Buffalo

The doctors who pioneered in the field of physical medicine long recognized the significant role they could play in medical practice, and they fought for recognition. They knew that treatment with physical medicine and the diagnosis and management of disease must be in expert hands for proper utilization and development.[1] They realize what a broad knowledge a doctor of physical medicine required. Consequently, they had to establish standards. Their effort was culminated in the organization of the American Board of Physical Medicine and Rehabilitation, and thus the recognition of this field of endeavor as a clinical specialty was accomplished. The requirements for the examination in physical medicine cover a broad field of medicine, surgery, and allied fields, such as biophysics, because the doctor will be called upon to deal with every type of case.[2] The physician practicing physical medicine wa designated the physiatrist by the Council on Physica Medicine of the American Medical Association at it annual meeting in 1946.[3]

MAIN FUNCTIONS

The principal functions of the physiatrist in a genera medical and surgical hospital are administration, diagnosis, therapy, and research. In addition, he coordinates the activities of ancillary services in a total effor to prepare the patient for a successful psychosocioeconomic adjustment following his discharge from the hospital. The ideal situation is when these functions are well blended. It does not mean that such a doctor could not have a primary interest; however, since he is representing a clinical specialty, any head of a department of physical medicine who will neglect his clinical functions for others, such as administration or research, leaving diagnosis entirely to the referring physician and therapy to the therapist, will not only misrepresent the specialty but may also do harm to the patient. It happens that physicians in charge of departments of physical medicine and rehabilitation overemphasize one function, neglecting the others. Some act purely as

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From the Department of Physical Medicine and Rehabilitation, Mercy Hospital, and the University of Buffalo School of Medicine. Formerly with the Veterans Administration Center, Wadsworth, Kan., and the University of Kansas School of Medicine.

1. Kreuscher, P. H.: Status of Physical Therapy in Connection with Orthopedic Surgery, Arch. Physical Therapy 8: 175-177 (April) 1927. A Forward Step, editorial, Brit. J. Phys. Med. 7: 213 (March) 1933.
2. Crisp, E. J.: Future of Physiotherapist, Brit. J. Phys. Med. 4: 106-109 (Aug.) 1941.
3. Physiatrist, Current Comment, J. A. M. A. 131: 34 (May 4) 1946.

administrators, and all they do for the patients is correlate for them the activities of the professional and subprofessional services, with no contribution of their special skills. They almost degrade themselves to the role of a correlator[4] and poorly represent a specialty that has so much to offer. There are others who go so far as to profess that the department of physical medicine is designed only for therapists to carry out blindly the referring doctor's prescription and that the role of the physiatrist is principally only research with some administrative duties. Of course, such a contention is completely fallacious. Treatments administered by therapists without the close and direct supervision of a doctor skilled in the specialty will usually result in the routine administration of "heat, massage, and exercise." The physiatrist understands the fine effects and minute differences of physical agents and is able to apply this knowledge in correlation with his clinical findings. He can make changes in modalities and even in the entire treatment regimen according to the physical and mental condition of the patient without delay.

The purpose of this paper is to stress the role of the physiatrist as a diagnostician. He helps the referring physician by utilizing his clinical acumen as well as the modern electrodiagnostic instruments that are at his disposal. Leaders in physical medicine recognize the importance of accurate diagnosis of the condition of patients referred to the department of physical medicine for treatment, and for that reason they advocate that referral diagnoses should not be accepted unquestioned.[5] A large percentage of patients are referred to the department of physical medicine for the treatment of diseases that are diagnosed tentatively at the time of admission to the hospital or shortly afterward, pending a thorough study. The aim of referral is usually symptomatic relief with "a little heat, massage, and exercise." The random selection of physical agents at our disposal may not only be harmful but actually catastrophic. A case history, as an example, will illustrate this point, and other points will be raised in connection with the description of other case histories.

REPORT OF CASES

Case 1.—A 55-year-old man was referred to the department of physical medicine and rehabilitation in November, 1950, for the treatment of peripheral neuritis with the following additional comments: "back pain, probably weight bearing or on postural basis." Physiatric examination revealed the following positive findings: The patient was obese, and his posture was poor, with severe relaxation of plantar arches, hallux valgus bilaterally, and round shoulders. There were moderate trophic changes of his feet, including toe nails. Pedal pulses could not be palpated. Oscillometric readings of legs were only trace and of the ankles and feet, zero. This examination indicated that patient's symptoms were caused primarily by arterial occlusion and perhaps secondarily by ischemic neuropathy of his legs. Random administration of heat and simply accepting the referral diagnosis of "peripheral neuritis" could have easily precipitated gangrene.

Another example will illustrate that postponement or no physical treatment may be the best course one can take for a patient referred to the department of physical medicine and rehabilitation.

Case 2.—A 64-year-old man was referred to us in October, 1950, for treatment of "recent right cerebrovascular accident with spasticity of left arm." Questioning of the patient at bedside by the doctor of physical medicine revealed that the patient fell and hurt his shoulder, and there was also some indication that he was under the influence of alcoholic beverages at the time of the supposed cerebrovascular accident. It was further established that no active or passive relaxed movement was possible in the left shoulder joint, and elbow movements were also restricted due to acute pain in the shoulder. The examiner suspected fracture of the humerus and recommended postponement of physical treatments until x-ray findings were known. Subsequently, it was revealed that patient had a fracture of the neck of the humerus. A hanging cast was applied after the patient's transfer to the orthopedic section. The patient became ambulatory in two days with no residue of any central nervous system insult. The diagnostic acumen of the physiatrist was obviously very contributory in this instance, and prompt initiation of treatments upon referral might have done great harm to the patient.

Frequently patients referred to the department of physical medicine for treatment are treated too long with no regard for expense and improvement. Physical medicine is oftentimes accused of unnecessary treatments. Such practices can be counteracted by the physiatrist implementing periodic reevaluations and by a standing order to therapists to report intolerance to treatment. A case history will illustrate this point.

Case 3.—A 23-year-old man was referred to the department of physical medicine and rehabilitation in January, 1951, for treatment of lumbosacral strain with diathermy, massage, and hyperextension back exercises. At that time patient was not examined by the physiatrist for the sake of expedience and because suggested treatments seemed adequate. One week later the therapist reported that patient was unable to tolerate hyperextension exercises. I went to see him when he was on the treatment table. I noted an old empyema scar. On slight touch of the scar, the patient became very belligerent and shoved the examiner's hand off. Watching the treatment, I found that he was totally uncooperative. An examination revealed the following history: The patient alleged pain across his back without radiation. He claimed that he was hospitalized the previous year. A myelogram was done after which he was discharged without treatment. He alleged pain since 1946 (five years) after an amphibious landing. Examination also revealed the patient was extremely jittery. Horizontally extended hands showed coarse tremor. His face looked tense and sunken. The empyema scar in the right axillary was very well healed and tender, but his reaction was not consistent to palpation. The patient alleged acute tenderness on slight touch of the lumbar muscles and spine. He flexed his body with knees extended, reaching 30 in. from the floor. Other movements were also extremely guarded. Paravertebral muscles were relaxed. Heel jar test elicited no pain, although the patient did not carry it out properly. It was the impression of the examiner that even though the patient might have recurrent lumbosacral strain, there was a 100% functional overlay. Psychiatric evaluation was recommended. The physician attending the patient was contacted, and physical treatments were discontinued. It was subsequently revealed that neuropsychiatric examination resulted in the establishment of the diagnosis of "conversion hysteria," and shock therapy was recommended.

The physiatrist is in a position to assist his colleagues in their diagnostic efforts by the utilization of modern electrodiagnostic instruments such as the constant current impulse stimulator developed by Golseth and Fizzell[6] and the electromyograph. The former permits us to gather important data on muscles by determining of the strength-duration curve, chronaxy, and repetitive, galvanic-tetanus, and rheobase ratios. The latter records the action potentials that develop in skeletal muscles. The clinical interpretation of this pool of information with correlation of clinical findings oftentimes furnishes us with convincing diagnostic clues that could not be arrived at by purely clinical means. The following case history will illustrate this point

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[4] Elkins, E. C.: Educational Problems in Physical Medicine and Rehabilitation, Arch. Phys. Med. **30**: 623-629 (Oct.) 1949.

[5] Rusk, H. A.: Physical Medicine and Rehabilitation: Problems of Education, Arch. Phys. Med. **32**: 137-142 (March) 1951. Huddleston, O. L.: New Horizons and Current Problems in Physical Medicine, Arch. Phys. Med. **29**: 623-628 (Oct.) 1948. Mead, S.: Responsibilities and Privileges of Physiatrist, South. M. J. **46**: 1197-1199 (Dec.) 1953.

[6] Golseth, J. G., and Fizzell, J. A.: Constant Current Impulse Stimulator, Arch. Phys. Med. **28**: 154-158 (March) 1947.

Data Obtained with Constant Current Impulse Stimulator in Patient with Deltoid Weakness

Strength-Duration Curve *

Dial Setting		Duration of Impulse, Milliseconds	Direct Current, Ma.	Electrode Placement
Interval	Duration			
4	16	500	2.0	Indifferent; insertion of deltoid, right
4	15	300	2.0	
4	14	100	2.0	
4	13	75	2.0	Active; over acromion process
4	12	54	2.0	
4	11	40	2.0	
4	10	29	2.0	
4	9	20	2.0	
4	8	14	2.0	
4	7	10	2.6	
4	6	7	3.0	
4	5	5	4.0	
4	4	3	4.5	
4	3	2	5.5	
4	2	1.5	6.5	
4	1	1	8.8	

Repetitive Stimuli

Dial Setting		Cps	Ratio	
Interval	Duration			
1	1	500	3.5	1:1
2	1	166	8.0	1:2.3
3	1	77	10.0	1:2.8

Tetanus Ratio

Dial Setting		Contraction (Cathode)	Direct Current, Ma	Contraction (Anode)	Direct Current Ma.
Interval	Duration				
5	17	Rheobase twitch	1.8	Rheobase twitch	3.2
5	17	Tetanus	5.5	Tetanus	...
		Cathodal tetanus ratio	3.1	Rheobase ratio	1.7

* Chronaxy in milliseconds, 5; no discontinuities; faradic response, present. Chronaxy by another method (rheobase 15 volts), 10 milliseconds.

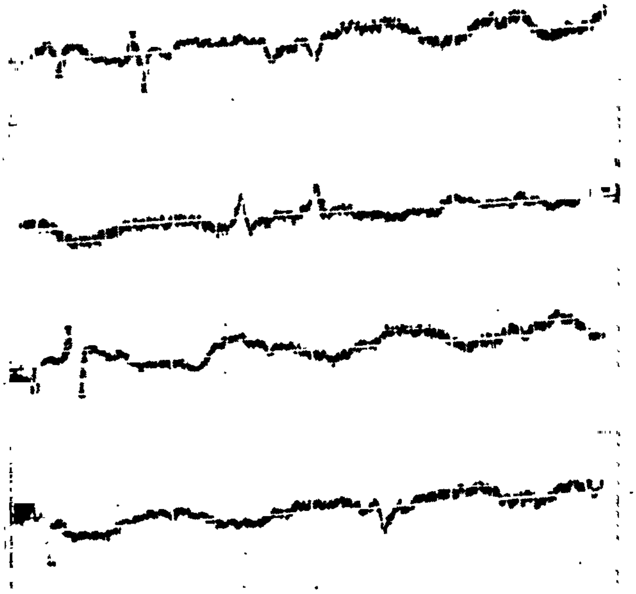

Fig. 1.—Electromyographic tracings of the middle deltoid muscle at rest: spontaneous diphasic and monophasic action potentials of some 20 to 50μ in amplitude and 2 to 3 milliseconds in duration. These are fibrillation potentials typical of lower motor neuron involvement.

Case 4.—A 41-year-old male was referred to the departmen of physical medicine and rehabilitation Oct. 17, 1950, for trea ment of "bursitis, right shoulder." The patient gave a histor of "pain in the right shoulder, down to arm" of two and on half weeks' duration. He also complained of numbness in a his fingers. It was obvious that the patient favored the right upp extremity by holding the arm in acute adduction. Function muscle examination revealed "T" to "P" strength of the deltoi latissimus dorsi, teres minor, and infraspinatus. There was on 20 degrees and 30 degrees of actual limitation in the should joint. Tapping of the deltoid revealed fasciculation. Reflexes we normal, and there were no sensory changes to pin prick. Ina much as the referral diagnosis of bursitis did not satisfy t examiner, further studies, such as cervical spine x-ray and spin fluid examination, were recommended and proved to be norm The referring physician consulted two neurologists, and bo were of the opinion that the patient's symptoms were caused disuse. Electrodiagnostic studies confirmed the original impr sion of the physiatrist that the right deltoid muscle was tr paretic. The table lists the information gathered with the co stant current impulse stimulator and the clinical interpretati of the examiner. The examiner's impression was that the elect cal pattern indicated lower motor neuron involvement. T impression was of a partial lesion (i. e., part of the fibers n mal, part denervated); hence, the muscle still responded to t faradic current. The long S-D curve, with a tilt of the strengt frequency ratio toward a 1:2:3 ratio, suggested a demyelinati process. Figures 1 and 2 are samples of electromyographic tra ing that clearly show numerous action potentials in the resti middle deltoid. These are fibrillation potentials. In the light such convincing evidence, the diagnosis was changed to acu neuritis with paralysis, etiology undetermined. The patient w subsequently treated on the basis of this diagnosis; he improv and was discharged.

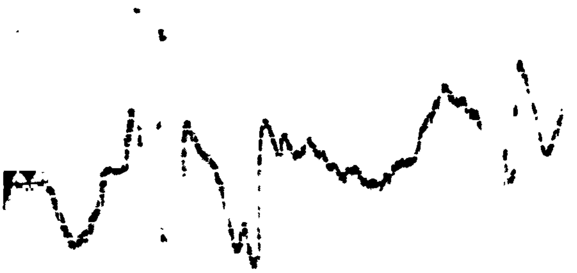

Fig. 2.—Electromyographic tracings of the middle deltoid muscle effort: simple and polyphasic potentials of 150 to 200μ in amplitude a 3 to 5 milliseconds in duration. These potentials are characteristic weak or paretic muscles.

SUMMARY

The physiatrist has an important role as a diagno tician in a general medical and surgical hospital. Med cal literature [7] points out that the physician trained i physical medicine, by virtue of his training and exper ence, must have more detailed knowledge of certain dis eases such as arthritis, peripheral vascular disease poliomyelitis, peripheral nerve injuries, cerebral pals and spinal cord injuries. I feel that many members o the medical profession are not aware of the help trained and qualified physiatrist can offer general prac titioners and many specialists in diagnosing disease and treating their patients.

409 Capen Blvd. (23).

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[7] Paul, W. D.: What Every Physician Should Know About Hospital Practice of Physical Medicine and Rehabilitation, Arch. Phys. Med. 31: 44-46 (Jan.) 1950.

PLACEMENT OF REHABILITATED PATIENTS

A. Ray Dawson, M.D.
and
Richard N. Anderson, M.A., Richmond, Va.

It is our purpose to make a progress report on a joint undertaking entered into by the vocational rehabilitation service, Department of Education, commonwealth of Virginia, and the McGuire Veterans Administration Hospital, Richmond, Va., wherein the commonwealth detailed to McGuire a state vocational counselor on a full-time basis. Thus the full facilities of the state in the areas of vocational counseling and job placement were brought to the veteran at the earliest practical moment in his illness or after his injury. As it was determined that we were to make a pilot study, prior approval was obtained from the central office of the Veterans Administration and the office of vocational rehabilitation, Department of Health, Education, and Welfare. The office of vocational rehabilitation underwrote the salary of our counselor for a trial period as a part of its research program. The Veterans Administration has had in operation for some time a well-developed and quite effective program of vocational counseling and job placement. However, the Veterans Administration's program was designed for and was primarily intended for persons with service-connected cases and was not expected to render adequate coverage to those with non-service-connected cases. The activities of the state in this study were limited to non-service-connected cases.

TYPE AND DISTRIBUTION OF CASES

In the late 1940's it became apparent that, while medicine and surgery were reaching a high degree of effectiveness in saving lives and restoring function, we in rehabilitation could not carry out our responsibilities without state aid in handling non-service-connected cases. Although the non-service-connected case load was not large volumewise, the cases were predominantly of the "dread disease" or "catastrophic injury" category. As will be seen later, numerically presented, we were dealing with paraplegic, psychotic, tuberculous, and orthopedic patients, patients with acute and chronic neurological conditions, and a few patients with general medical and surgical conditions. These were patients who required maximum rehabilitation efforts and careful job-study placement if rehabilitation to employability was to be accomplished. For a while we had the services of a state counselor on an itinerant basis. This approach was found to be inadequate. It failed in the two most important areas: first, that of early counseling, and, second, complete teamwork follow-through. We, therefore, requested of the commonwealth that a full-time vocational counselor be detailed to our hospital, and this was done in May, 1951. For our study we have selected the 18 month period between July 1, 1951, and Dec. 30, 1952, in which there were 400 cases. A follow-up study was made the first three months of this year; i. e., Jan. 1 through March 31, 1955.

Although it was originally not the purpose of this paper to discuss the therapeutic value of vocational counseling, this was such a striking feature that we wish to comment on it. Most of these patients were in their late 20's or early 30's; they had been discharged from the service a matter of three to five years, and they had young families. By and large, they were just getting started in a business or a vocation when a catastrophe struck them. Some of the patients were so overwhelmed as to be unable to fight their way back to vocational adjustment. In our study we used the term "lack of motivation" to describe this condition. It is not a term that we prefer, because we believe that we are dealing with such factors as fear, resentment, self-pity, and mother fixation. Early vocational counseling combined with other rehabilitation activities did much to prevent these emotions from developing a fixed pattern of action. There are certain additional features of this group that should be mentioned. 1. None of these patients was sent to the hospital for physical restoration in connection with an already planned vocational objective. 2. None of these patients was able to return to his former employment without modification of working conditions. 3. A few were able to return to related or similar employment. 4. A few patients were reemployed by their former employers in different job classifications.

The table shows the general distribution of cases and certain totaling data. This table is divided into three sections. The section on cases gives the number of patients worked with and certain basic data concerning them. The section on patients who were rejected gives the three reasons for rejection: (1) service-connected disabilities, (2) lack of motivation, and (3) rehabilitation medically unfeasible. The section on status shows the number of patients accepted for training and/or job placement and gives the outcome of efforts directed to this end. The type of patients that we were working with is shown in column 1. The first five categories of patients—i. e., neurological, tuberculous, psychiatric, paraplegic, and poliomyelitic—by their very nature present major rehabilitation problems. In addition to this, one of us (A. R. D.) would like to comment on the severity of disease or injury seen in a Veterans Administration hospital as compared with a similar group seen in a large state or municipal hospital. In those categories of conditions where patients can be adequately treated by office procedures or at most a few days of hospitalization, the person with a non-service-connected case does not usually come to a Veterans Administration hospital. It is those among this group with severe cases and those requiring prolonged hospitalization who seek Veterans Adminis-

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Chief, Physical Medicine and Rehabilitation Service, McGuire Veterans Administration Hospital, and Associate Professor of Clinical Physical Medicine, Medical College of Virginia (Dr. Dawson); Director, Division of Rehabilitation and Special Education, State Department of Education (Mr. Anderson).

Read before the Section on Physical Medicine and Rehabilitation at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 9, 1955.

tration hospital care. This is best exemplified by our findings in the neurological and general medical groups; rehabilitation of 31 of 49 neurological and 16 of 31 general medical patients was finally found to be unfeasible for medical reasons.

Number of Patients.—Column 2 gives the total number of patients divided into categories and reflects the nature of our hospital and the type and volume of problem that presents itself to us. As can be seen from the total, we have a large neurological service, a fairly large psychiatric service for a general hospital, and a large paraplegic service, as well as a poliomyelitic service with respirator facilities.

Mean Age.—Column 3 gives the mean age of the patients. We have commented on this before; however, we would like to point to the higher age levels found among neurological and medical patients. This is even more striking when we study the age distribution pattern and find such a large number of patients in the 50 to 65 age groups.

Out-of-State Cases.—Columns 4 and 5 compare the patients from out-of-state to those from the state, with the largest out-of-state group being paraplegic. We did not find the same degree of accuracy in following the out-of-state patients that we found within the state of Virginia; this was perhaps due to distance and multiple authorities. State versus nonstate residence of patients had little effect on our findings. In the actual vocational counseling and job placement of the patient we were much pleased with the full cooperation that we received from out-of-state authorities. We believe this condition reflects the high degree of efficiency the vocational rehabilitation services have attained in all of the states with which we cooperated.

Reasons for Rejection.—Columns 6, 7, and 8 with their percentages depict the reason why patients were rejected for training and/or job placement. Column 6 shows how many patients with service-connected conditions were rejected. If a patient's claim for service connection was adjudicated as "service connected" while the state counselor was working with him, this patient was immediately turned over to the veteran's counseling service and the case folder was removed from the files of the state counselor. As can be seen in the table, there were 43 such patients, with the largest number among the paraplegics. Column 7 shows the number and percentage of patients rejected for lack of motivation. We have found that lack of motivation has not shown itsel percentagewise to be the big block to rehabilitation tha could be expected. In addition, we believe that as w learn more about the emotional components accompanying severe disability many of the associated factors ma be extracted and found amenable to treatment. We wis to reemphasize that our findings lead us to believe tha early rehabilitation endeavors and early vocational counseling had much to do with preventing frustration an dependency patterns from developing. Column 8 concerns the cases in which rehabilitation was medically unfeasible. Because of factors already enumerated in th discussion, we found this element to be particularly hig in the medical and neurological groups; however, for th remainder of our study, medical unfeasibility was no above what would normally be expected. A total of 17 or 44% of the patients (i. e., columns 6, 7, and 8) we rejected for training and/or job placement for one the reasons enumerated above, leaving 224 patien (column 9) who were accepted for training and jo placement.

Results of Accepted Cases.—Of the group of 224 wh were accepted, 36 (column 10) are now hospitalized, (column 11) are in training, and 38 (column 12) coul not be followed up at the time this paper was prepared Two (column 13) are known to be deceased. Five (column 14) have employment pending. Column 15 reveal that 134 or 59% of those accepted are now employe and earning $305,391 (column 16) per annum, an average of $2,279 a year.

Results of Cooperative Program Between State Rehabilitation Service and McGuire Veterans Administration Hospital, July 1, 1951, to Dec. 30, 1952

	Cases				Rejected						Status								
					Service-Connected Case		Lack of Motivation		Medically Unfeasible								Employed		
Diagnosis	Total	Median Age	Out-of-State	Virginia	No.	%	No.	%	No.	%	Accepted	Hospitalized	Training	Unknown	Deceased	Employment Pending	No.	%	Total Wages, $
Neurological.....	51	37	19	32	2	3.9	5	9.8	31	61.0	13	..	1	5	..	..	7	53.9	11,22
Tuberculous..........	52	33	8	44	3	5.7	8	15.0	5	9.6	36	2	2	7	..	..	25	69.4	52,46
Psychiatric..........	75	33	9	66	7	9.3	15	20.0	13	17.4	40	2	..	5	..	..	33	82.5	93,24
Paraplegic...........	157	30	88	69	26	16.5	14	8.3	15	8.9	102	32	6	16	1	5	42	41.0	93,55
Poliomyelitic........	4	33	4	..	..	....	..	....	..	....	4	..	..	..	..	..	4	100	11,33
Medical..............	32	38	3	29	1	2.8	4	10.6	16	42.0	11	..	..	3	1	..	7	63.6	11,10
Orthopedic...........	29	31	8	21	4	13.8	3	10.4	4	13.8	18	..	..	2	..	..	16	88.8	32,45
Total............	400	..	139	261	(43	....	49	....	84	....)	224	36	9	38	2	5	134	59.8	305,39
							176-44%												
Column (1)	(2)	(3)	(4)	(5)	(6)		(7)		(8)		(9)	(10)	(11)	(12)	(13)	(14)	(15)		(16)

EFFECT OF COUNSELING

One might logically ask how many of these people would have found employment had there not been a vocational counseling service available. This, of course, is a question that constantly plagues us. There is no ready answer, but we do know from clinical experience that before having a full-time counselor for this group of persons with non-service-connected cases very few of them found suitable employment and that as soon as we had the full facilities of the commonwealth of Virginia at our command a changed picture became evident almost at once. We are convinced that early rehabilitation and complete vocational counseling plus job placement pay handsome dividends in happiness and financial returns.

RESULTS WITH PSYCHIATRIC GROUP

We had hoped to analyze our findings in some detail in relation to each category, but as space will restrict us to a few remarks relative to only one category, we would call attention to the psychiatric group, which includes the psychotic. The results of work with these patients both during this study and since Dec. 30, 1952, has been most gratifying. There seems to be such a tendency to shy away from job-placing the patient who has been psychotic that we wish to emphasize the good features of handling this group. It will be noted that of the 75 handled, 40 were finally accepted for training and/or job placement; of the 40 accepted, 33 are now known to be employed. They are making $93,245 annually, with an average yearly income of $2,825, which is some $600 better than the group average. It has been our experience that when both the employees and the employers are adequately counseled regarding what can be expected in a job situation much of the cloudiness surrounding employment of persons who have been psychotic disappears. To place adequately a person who has been psychotic we must take into consideration his basic personality pattern and relate to it his future working conditions. Such things as noise of work, need to meet the public versus lack of it, and pressure to make decisions versus repetitive work processes become major factors in his adjustment. Among the 40 persons accepted, psychiatric diagnoses varied from mild conversion reaction to psychosis requiring lobotomy. In fact, two of the employed persons are patients in whom lobotomy was done. The largest number, as would be expected, were schizophrenic. We believe this group deserves more attention than we have given it in the past.

One of us (R. N. A.) would like to emphasize that in dealing with severely disabled patients there must be the closest cooperation between vocational counseling, job placement services, and the medical services. In addition, there must be medical follow-through to the actual working situation and, at times, medical counseling of the patient and the employer after the patient is on the job.

SUMMARY

Over a period of 18 months 400 severely disabled veterans were studied and treated in a joint project of the physical medicine and rehabilitation service and the vocational counseling service, McGuire Veterans Administration Hospital, Richmond, Va., and the vocational rehabilitation service, Department of Education, commonwealth of Virginia. The study was concerned chiefly with the 357 persons whose disabilities were non-service-connected. Follow-up data were collected three years after the close of the test period. Of the 357 patients with non-service-connected disabilities, 133 were not accepted for job placement because of various reasons. Of the 224 accepted, 134 or 59.8% were gainfully employed at the time of the follow-up; their average annual salary was $2,279 per year. The earlier in the patient's disability that rehabilitation and vocational counseling are begun, the better are the therapeutic results, physical and psychological, and the better the vocational rehabilitation. In this study, the results with psychiatric patients, including psychotic, have been gratifying. Of 40 such patients accepted for job placement, 33 or 82.5% were gainfully employed at the time of the follow-up. Their average annual earnings were $2,825, or better than the average for the whole group. Close cooperation between the physician, vocational counselor, and job placement service is an essential feature in dealing with the severely disabled.

3416 Wythe Ave. (Dr. Dawson).

CLINICAL NOTES

DIAGNOSTIC ERRORS DUE TO HIGH SPINAL FLUID LEUKOCYTE COUNT IN SUBDURAL HEMATOMA

William E. Schatten, M.D.
and
Frank E. Nulsen, M.D., Cleveland

There have been numerous reports of subdural hematoma since the condition was first described as an entity by Putnam and Cushing in 1925. However, the white blood cell reaction of the meninges in this disorder has been mentioned in very few reports and the spinal fluid white cell count has not been given consideration as a finding that might lead to an error in diagnosis. The consensus of opinion has been expressed in an early article by Munro,[1] who concluded that exploratory trephination of the skull was indicated whenever patients showed progressive mental changes or neurological signs and the cellular count of the cerebrospinal fluid ruled out meningitis. Others have stressed that neither failure to elicit a history of head trauma nor the finding of normal or reduced spinal fluid pressure eliminates subdural hematoma as a cause for progressive deterioration in behavior and responsiveness. In the following two cases of subdural hematoma an atypical finding, a leukocytic reaction in the spinal fluid, led to an erroneous diagnosis of meningitis and operative intervention was therefore delayed.

REPORT OF CASES

CASE 1.—A 13-year-old Negro boy was admitted to the neurosurgical service at the Hospital of the University of Pennsylvania on Nov. 13, 1948. This boy was considered by his guardian to have been in excellent health until two weeks prior to admission, when he began to complain of headache, refused to go to school, and ate poorly at home. This headache increased in severity and became associated with vomiting as well as increasing lethargy and confusion. He was rushed to the hospital when it became

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From the Division of Neurosurgery, Department of Surgery, Western Reserve University School of Medicine and University Hospitals.

Dr. Francis C. Grant gave permission for inclusion of case 1.

[1] Munro, D.: The Diagnosis and Treatment of Subdural Hematomata: A Report of 62 Cases, New England J. Med. **210:** 1145-1160, 1934.

almost impossible to arouse him. Examination showed a well-nourished young male who lay quietly in bed. He would respond to simple commands and say a few words with persistent urging. He responded to painful stimuli by moving his extremities in symmetrical fashion and by grimacing symmetrically. There was striking nuchal rigidity with a bilateral Kernig's sign. The optic fundi showed venous engorgement without definite papilledema. The pupils were equal in size, and there was limitation in the lateral movement of each eye, suggesting bilateral sixth nerve involvement. The extremities showed reduced tendon reflexes with bilateral Babinski signs. His temperature was 100 F, pulse rate 60 per minute, respiration rate 16, and blood pressure 130/88 mm. Hg.

Lumbar puncture revealed slightly xanthochromic fluid under more than 600 mm. pressure in the reclining position. Despite the elevated pressure, the Queckenstedt maneuver was employed to demonstrate open manometrics. The immediate blood cell count showed 140 leukocytes per cubic millimeter (90% lymphocytes) and no erythrocytes. Subsequent chemical studies showed that this fluid had a sugar content of 55 mg. per 100 cc. Neurosurgical consultation was promptly requested. The central nervous system depression with increased intracranial pressure, in combination with signs of meningeal irritation and a spinal fluid lymphocytosis, was considered consistent with tuberculous meningitis, but brain abscess remained a possibility. Skull x-rays showed no definite abnormality (the pineal gland was not visualized). A chest film showed no abnormalities. Occipital trephines were then accomplished with the patient under local anesthesia in order to give access to the ventricles. The cortex bulged on opening of the dura on each side. Each lateral ventricle was readily encountered with a cannula and fluid escaped under moderately increased initial pressure with each ventricle draining about 15 cc. Since this ventricular estimation gave the impression of no ventricular enlargement or asymmetry to suggest a large mass lesion and since the patient's condition seemed, if anything, improved, it was decided to postpone introduction of air for ventriculography until morning, with the patient observed closely meanwhile. Three hours later, without any previous fluctuation in vital signs or responsiveness, the patient abruptly died.

Autopsy revealed a 200 cc. subdural collection of fluid on the left consisting of dark liquefied blood enclosed in a thin yellow-stained membrane. Its posterior limit stopped just short of the left occipital trephine. The collection was of sufficient size to be consistent with critically increased intracranial pressure. There were associated herniations of the left uncus through the incisura and of cerebellum through the foramen magnum as the probable explanation for respiratory cessation. Subsequent study revealed no lesions in the brain parenchyma except for a few petechial hemorrhages in the pons. The meninges showed no inflammatory reaction on microscopic study.

Case 2.—A 46-year-old Negro female was brought to the emergency ward of University Hospitals of Cleveland on April 4, 1954, in a semiconscious state. The patient had been struck on the head approximately 48 hours prior to the time of admission with no resulting loss of consciousness. Twenty-four hours later, she became very quiet and did not respond well to requests. She was, however, able to ask for assistance to the bathroom and for water to drink. She remained in bed most of the time during the 12 hours preceding admission.

Physical examination revealed a well-developed, moderately obese Negro female who responded slowly to simple commands. Temperature was 39.2 C, pulse rate 100 per minute, respiration rate 28, and blood pressure 180/90 mm. Hg. There were no lacerations of the scalp or face. There was conjunctival hemorrhage and ecchymosis of the eyelid and surrounding soft tissue of the right eye. There was moderate nuchal rigidity, with a positive Kernig's sign. Lumbar puncture revealed xanthochromic fluid under 340 mm. pressure in the reclining position. The immediate blood cell count showed 6,850 leukocytes (100% polymorphonuclear leukocytes) and 5,050 erythrocytes per cubic millimeter. Subsequent chemical studies showed that this fluid had a sugar content of 55 mg. per 100 cc. and a protein content of 220 mg. per 100 cc. Gram and Ziehl-Neelsen stains of the spinal fluid did not reveal the presence of bacteria. The peripheral leukocyte count was 10,100, with a normal differential count.

Skull roentgenograms showed no evidence of a fracture, and the pineal gland could not be identified. The signs of meningeal irritation and the marked polymorphonuclear leukocyte response in the cerebrospinal fluid were considered strong evidence for *acute bacterial meningitis*. It was decided to watch the patient closely and to treat her with penicillin and streptomycin. Lumbar puncture performed 12 hours after admission revealed xanthochromic fluid under 240 mm. pressure. There were 2,028 leukocytes per cubic millimeter (98% polymorphonuclear leukocytes). Subsequent chemical studies showed that this fluid had a sugar content of 53 mg. per 100 cc. and a protein level of 220 mg. per 100 cc. Twenty-four hours after admission, the patient's pulse suddenly decreased from an average of 104 to 80; the other vital signs remained stable. At that time it was also noted that there was slight dilatation of the right pupil and conjugate deviation of the eyes to the right. The following morning it was believed that the patient was becoming less responsive. Lumbar puncture at that time showed xanthochromic cerebrospinal fluid with a leukocyte count of 520 (61% polymorphonuclear leukocytes), a sugar level of 67 mg. per 100 cc., and protein level of 264 mg. per 100 cc.

A relatively dilated right pupil and decreasing responsiveness were considered indications for trephination. This was performed 36 hours after admission. A subdural hematoma was encountered in right frontal and parietal trephines, and a considerable amount of semisolid clot was evacuated by through-and-through irrigation. The patient's condition improved only temporarily. Ventriculography was therefore performed three days later. This revealed a displacement of the ventricular system toward the left, with the third ventricle being centered 1.2 cm. from the midline. Accordingly, craniotomy was performed immediately and an extensive solid hematoma was evacuated from the right subdural space. This lay inferior to the previous burr holes, reaching maximum thickness over the temporal lobe. The patient had a satisfactory recovery postoperatively and she was discharged 25 days following craniotomy. The only residual neurological change was a left homonymous hemianopsia. Spinal fluid leukocytes were reduced to 2 mononuclear leukocytes per cubic millimeter, and she was afebrile by the eighth postoperative day. Eight months postoperatively the patient was managing her household effectively and was not consciously disabled by her residual difficulty in seeing toward the left.

COMMENT

In the first case, in which there was a history of progressive deterioration with critical depression of the central nervous system and increased intracranial pressure, chronic subdural hematoma was considered improbable because of the cellular reaction in the spinal fluid. Trephination was carried out, but in a fashion too limited to exclude this possibility with the unfortunate postponement of ventriculography since the patient's condition did not appear critical. His sudden decompensation to increased intracranial pressure and the cerebellar pressure cone found at autopsy may well be related to the lumbar puncture and the Queckenstedt test carried out in the face of increased intracranial pressure. Nevertheless, had the presumption of a subdural hematoma not been discarded because of the cerebrospinal fluid blood cell count, the boy in this case would almost certainly have been saved. In the second case, surgical intervention was delayed 36 hours because the spinal fluid leukocyte count, which was greater than the spinal fluid erythrocyte count, was believed to be too high to represent an aseptic meningeal reaction. Happily, previous experience now dictated that a clinical situation consistent with subdural hematoma should be treated as such in disregard of spinal fluid findings, so that operation was undertaken before irreversible damage occurred.

Let us now consider possible explanations for this unusual cellular reaction in subdural hematoma. Merritt and Fremont-Smith,[2] in a study of the spinal fluid leukocyte count in 54 cases of acute subdural hematoma, reported one case in which there was a marked aseptic meningeal reaction, there being 2,400 polymorphonuclear leukocytes per cubic millimeter. In the same report, autopsy-proved cases of intracerebral hemorrhage were reviewed and the greatest aseptic meningeal reaction was represented by a spinal fluid white cell count of 3,600 leukocytes per cubic millimeter, 90% being polymorphonuclear leukocytes. Hammes,[3] in a study of 53 autopsy-proved cases of ruptured intracranial aneurysm with subarachnoid hemorrhage, concluded that the leukocyte reactions in the meninges usually increased progressively until the third day after bleeding, but at no time was a polymorphonuclear leukocyte response comparable in intensity to the reaction in acute bacterial meningitis.

The low-grade cellular reaction in the spinal fluid in the first case in the presence of xanthochromia would seem comparable to the above findings—a meningeal reaction to remote subarachnoid bleeding caused by the same trauma that initiated the slowly growing subdural collection. The intense meningeal reaction with the resulting high spinal fluid polymorphonuclear leukocyte count that was present in the second patient is an exception to the findings of the above-mentioned workers and is an example of a case of acute subdural hematoma with unusual leukocytic reaction to associated subarachnoid bleeding. It was erroneously diagnosed as an acute bacterial meningitis because the polymorphonuclear leukocyte response was not thought to be consistent with an aseptic meningeal reaction. Both cases emphasize that the leukocyte count of the spinal fluid can be misleading if it is used to rule out a diagnosis of acute subdural hematoma.

It is generally realized that the trauma producing subdural bleeding giving rise to hematoma can be accompanied by a cortical contusion and subarachnoid bleeding. Just as the finding of bloody spinal fluid by lumbar puncture after trauma does not militate for or against an associated subdural hematoma, so also polymorphonuclear or lymphocytic cells in spinal fluid consequent to subarachnoid bleeding and meningeal irritation do not rule out subdural hematoma. A hint that the leukocytic reaction might have been due to previous subarachnoid bleeding rather than infection was afforded by the xanthochromic character of the supernatant spinal fluid when grossly bloody (case 2) or its yellow color when erythrocytes were no longer present (case 1). The absence of bacterial infection was then further established by the finding of normal spinal fluid sugar content in each instance.

SUMMARY

Two cases of subdural hematoma in which elevated spinal fluid leukocyte counts led to erroneous diagnoses of meningitis emphasize that the leukocyte count of the cerebrospinal fluid is not, by itself, diagnostic of meningitis and should not prevent exploratory trephination of the skull when a growing intracranial mass is suggested by progressive deterioration of sensorium. Because of the insidious behavior of the subdural hematoma, even a temporary misdirection in the management of such a case as probable meningitis can result in fatality, while complete recovery can be achieved by early surgical intervention.

2065 Adelbert Rd. (Dr. Nulsen).

[2] Merritt, H. H., and Fremont-Smith, F.: The Cerebrospinal Fluid, Philadelphia, W. B. Saunders Company, 1938.

[3] Hammes, E. M., Jr.: Reaction of the Meninges to Blood, Arch. Neurol. & Psychiat. 52:505-514 (Dec.) 1944.

GLUCOSE-INSULIN TOLERANCE TEST IN RHEUMATOID ARTHRITIS

STUDY OF TWENTY-NINE CASES

Jacques Houli, M.D.
and
Helion Povoa Filho, M.D., Rio de Janeiro, Brazil

There is still doubt concerning the presence of pituitary or adrenal insufficiency in patients with rheumatoid arthritis. The glucose-insulin tolerance test has previously been studied by several authors and is considered a good index of pituitary and adrenal function.[1] The test is based on the observation that, in normal individuals, the administration of glucose (30 to 60 minutes after insulin-induced hypoglycemia) is followed by hyperglycemia of greater intensity than that obtained by giving glucose without previously giving insulin.[2] Thus, administration of glucose accentuates the homeostatic reaction to hypoglycemia, believed to be mediated by hormones of the anterior pituitary and from the adrenal cortex and medulla.

Patients with adrenal or pituitary insufficiency and with hyperinsulinism show an exaggerated reaction to insulin, and spontaneous rise in the blood sugar level after induced hypoglycemia is retarded.[1a] One of the advantages of the glucose-insulin test is that, with the administration of glucose, the danger of a marked degree of hypoglycemia is avoided. It is well known that, in the presence of a marked degree of adrenal insufficiency, hypoglycemia can be fatal. Nevertheless, in suspected cases of adrenal cortical hypofunction (Addison's disease) or hypopituitary cachexia (Simmond's disease), it is advisable to use only one-half or one-third of the usual dose of insulin. This test has been analyzed in various morbid conditions and was found to be of value in the diagnosis of adrenal and pituitary insufficiency.[1a] In nine patients with prolonged malnutrition, secondary to nervous anorexia, serious organic disease, and uncontrolled vomiting (neurosis), the test was normal in seven cases, abnormal in one (nervous anorexia), and doubtful in one.[1a] Rapid and distinct rise in blood sugar level after insulin and glucose therapy is a strong argument against the presence of adrenal or pituitary insufficiency. However, there are authors who believe that the alterations of glucose metabolism are not the cause but the secondary effect of the rheumatic process.[3]

From the Department of Rheumatic and Bone Diseases, Fifth Chair of Internal Medicine, University of Brazil.

[1] (*a*) Engel, F. L., and Scott, J. L.: The Insulin-Glucose Tolerance Test: A Modified Procedure for the Detection of Hypoglycemia Unresponsiveness in Pituitary and Adrenal Insufficiency, J. Clin. Invest. 29: 151, 1950. (*b*) Fraser, R. W.; Albright, F., and Smith, P. H.: The Value of the Glucose Tolerance Test, Insulin Tolerance Test and Glucose-Insulin Tolerance Test in the Diagnosis of Endocrinologic Disorders of Glucose Metabolism, J. Clin. Endocrinol. 1: 297, 1941.

[2] Footnote 1*b*. Somogyi, M.: A Paradoxical Effect of Insulin on Glucose Assimilation, Federation Proc. 7: 190, 1948.

TECHNIQUES OF GLUCOSE-INSULIN TESTS

We studied the glucose-insulin tolerance test as a method of investigating the possible presence of adrenal or pituitary insufficiency in a group of 29 patients with rheumatoid arthritis. Among those, 26 patients had a good general condition and nutritional status and the remaining 3 (cases 5, 6, and 7 of group 2) did not. In the first group of 12 patients we applied the technique of Fraser and co-workers,[1b] and in the second group of 17 patients the technique used was that of Engel and Scott.[1] The previous diet of both groups was a regular one.

Technique of Fraser.—In Fraser's technique [1b] the first sample of blood is collected in the fasting state, immediately followed by the oral administration of 100 gm. of glucose and 0.1 units of regular insulin given intravenously per kilogram of body weight. Additional samples of blood are taken after 20, 30, 45, 60, and 90 minutes. About 120 minutes later, 0.01 ml. of epinephrine was injected intramuscularly, and additional samples of blood are taken after 165 and 180 minutes. By the simultaneous administration of glucose and insulin the changes in serum glucose levels normally are very slight. After the administration of epinephrine, with the intention of mobilizing hepatic glycogen, the glucose level must increase between 35 and 45 mg. per 100 cc. in 40 to 60 minutes. With this technique we studied one group of 12 patients in the various evolutive stages of rheumatoid arthritis according to Steinbrocker's criteria: 1—initial, 2—moderately advanced, 3—advanced, and 4—terminal (table 1). All the results were normal.

TABLE 1.—*Results of Glucose-Insulin Test in Twelve Patients, by the Technique of Fraser and Co-Workers*

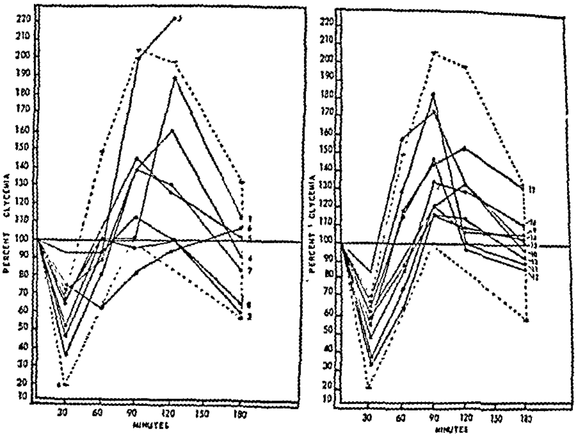
			Serum Glucose Levels, Mg./100 Cc.							
			No. of Min. After Administration of Glucose and Insulin						No. of Min. After Administration, with Addition of Epinephrine	
Case No.	Evolutive Stage *	Fasting Blood Sugar Level, Mg./100 Cc.	20	30	45	60	90	120	165	180
1	2	95	115	110	130	130	125	120	150	145
2	2	90	120	140	140	...	145	100	125	90
3	2	90	140	170	180	190	135	130	130	150
4	1	90	110	110	105	125	101	90	115	130
5	3	105	115	145	170	165	95	95	175	135
6	3	90	125	145	190	190	180	160	175	155
7	2	85	135	125	130	115	115	120	180	170
8	2	90	95	100	130	140	125	100	165	170
9	3	115	240	160	195	240	215	145	160	185
10	2	95	95	115	150	155	125	80	140	150
11	3	90	105	120	150	140	130	155	180	175
12	2	80	55	55	70	80	105	95	155	155

* According to Steinbrocker's criteria: 1, initial; 2, moderately advanced; 3, advanced, and 4, terminal.

Technique of Engel and Scott.—After taking one blood sample in the fasting state we injected 0.1 unit of regular insulin per kilogram of body weight. Thirty minutes after (or before, if symptoms of hypoglycemic shock appear) a new blood sample is taken, and we administer 0.8 gm. of glucose orally per kilogram. New blood samples are taken 60, 90, 120, and 180 minutes from the beginning of the test. We studied 17 patients in various stages of the disease. The results, given in milligrams, are tabulated in table 2. The figure gives the findings in percentage of the initial blood sample that was considered as 100%. The results were normal in all instances. We wish to emphasize that the two groups on whom tests were done consisted of different patients.

SUMMARY

The study of the glucose-insulin tolerance test, as a method of determining the possible presence of adrenal or pituitary insufficiency in patients with rheumatoid arthritis in the various evolutive stages of the disease, gave normal results in two groups of patients. In one group of 12 cases studies were done by the technique of Fraser and co-workers and in the other group of 17 patients by the technique of Engel and Scott.



Glucose-insulin tolerance test in 17 cases of rheumatoid arthritis in various evolutive stages, by Engel and Scott's technique. Interrupted lines give the boundaries of normality. Left, cases 1 to 8. Right, cases 9 to 17.

TABLE 2.—*Results of Glucose-Insulin Test in Seventeen Patients, by the Technique of Engel and Scott*

			Serum Glucose Levels, Mg./100 Cc.				
			No. of Min. After Administration of Glucose and Insulin				
Case No.	Evolutive Stage *	Fasting Blood Sugar Level, Mg./100 Cc.	30	60	90	120	180
1	3	106	73.2	108.0	108.0	209.0	118.0
2	3	110.3	58.5	110.3	106.8	110.0	65.5
3	3	96.5	90.5	124.0	151.0	160.0	140.0
4	3	77.0	56.6	89.0	190.2	213.7	.....
5	3	91.3	59.4	69.0	107.0	122.4	69.0
6	3	86.0	63.0	95.1	131.1	113.6	93.9
7	4	100.0	35.0	53.0	70.0	80.0	93.0
8	3	93.6	43.0	80.0	140.0	130.0	85.0
9	2	118.1	69.0	86.0	114.0	93.0	60.0
10	2	127.5	79.5	102.1	136.2	126.9	99.5
11	2	96.0	64.0	.....	125.5	168.6	122.1
12	1	100.0	65.0	124.0	174.0	96.0	86.0
13	1	111.2	35.7	113.0	142.0	96.0	86.0
14	1	149.1	48.8	69.6	132.7	130.6	103.7
15	1	110.0	90.0	109.0	182.7	163.7	155.7
16	3	82.0	40.0	174.0	187.0	146.0	112.0
17	3	105.0	60.0	68.0	110.0	108.0	90.0

* According to Steinbrocker's criteria: 1, initial; 2, moderately advanced; 3, advanced; and 4, terminal.

Rua Constante Ramos, 141—Apt. 101 (Dr. Houli).

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3. Hiller, E.: Störungen des Wasser- und Zuckerstoffwechsels als Ausdruck einer diencephalen Störung bei chronischer Polyarthritis, Ztschr. klin. Med. 146:569, 1950.

MEDICAL EDUCATION in the UNITED STATES and CANADA

FIFTY-FIFTH ANNUAL REPORT ON MEDICAL EDUCATION IN THE UNITED STATES AND CANADA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Edward L. Turner, M.D., Walter S. Wiggins, M.D., and Anne Tipner

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Acknowledgment

The material on the following pages constitutes the 55th annual report on "Medical Education in the United States and Canada," compiled by the Council on Medical Education and Hospitals. It includes data derived from official sources concerning schools of medicine and matters of information pertinent to medical education. The presentation of this information would not be possible without the full cooperation of medical school and university administrative officers, government officials, and many others. The Council on Medical Education and Hospitals wishes to express profound appreciation to the many individuals who have provided the information on which this current report is based.

Introduction

In the introduction to the comprehensive self-analysis of "Medical Schools in the United States at Mid-Century," Deitrick and Berson[1] indicate certain basic premises in their concern with the definition of a medical school and its responsibilities. These premises, involving fundamental principles in the education of a physician against which present-day medical education can be measured, are of interest and concern to all engaged in this important field of activity. Because the Council on Medical Education and Hospitals believes these principles to be of fundamental significance, they are referred to in this introductory statement for reflection and as a keynote in the study of the accompanying data on medical education.

First of all, "a medical school is held to be an educational institution concerned with a certain body of scientific and empiric knowledge, to which it should continue to make additions, and with which two individuals, the teacher and the student, must deal in order to understand and help a third person for the purpose of maintaining his health or overcoming his illness."

This necessitates the acceptance of two major responsibilities on the part of a medical school in the development of its educational program. The first of these is directed to its students and the second to society, through the individuals graduated as physicians. Because the medical school is the means of approach to a career in medicine, medical schools naturally are largely responsible for the medical profession. Because of this, the first and perhaps most important consideration of those vested with responsibility "is that the students must be the best human material that the faculty can select."

It is axiomatic that the medical student is the central factor in medical education and that all basic policies and activities be planned and conducted so as to create the best possible environmental circumstances and opportunities for him. The student entering upon the study of medicine has been molded by 20 years or so of development and education, and many of his acquired faults and weaknesses cannot be readily corrected by four years of medical education. The student's attitude and point of view and the level at which the medical school can initiate its educational program effectively are determined to a large extent by the type and quality of the preprofessional education he has experienced. Thus preprofessional education has become of increasing importance to medical educators and deserving of greater attention on their part in the continuing study of the background for medical education.

Data in table 20 are derived from table 2 of Stalnaker, J. M., and Dykman, R. A.: The Study of Applicants, Association of American Medical Colleges, to be published, and appears with permission of the authors.

[1] Deitrick, J. E., and Berson, R. C.: Medical Schools in the United States at Mid-Century, New York, McGraw-Hill Book Company, Inc., 1953.

In the educational program in the medical school, there is no question but that the caliber of the faculty personnel and their attitude, sincerity of purpose, and interest in education are of greater importance than the exact manner of curriculum organization. The basic function of teaching and instructional methods, in addition to the acquisition of knowledge, lies in its potentiality to stimulate students to develop their own latent capacities and interests. Opportunities and experiences designed to stimulate the development of these student potentials should, therefore, be offered the student during his medical school exposure. Individuals entering the field of medicine today must develop a sound concept of the experimental method. They must develop an understanding of the principles and methods of the basic sciences so essential to comprehension of clinical medicine. During the undergraduate medical school experience, students must become familiar with sound methods of patient study under careful and critical supervision. It is imperative that those who teach in schools of medicine should be individuals who in their daily work, through precept and example, represent the highest concepts of ethics and professional care. This should begin with the very first contacts in medical school and must be fully as applicable in the basic medical sciences as in the undergraduate clinical fields of study and consistently encountered later through every phase of graduate and postgraduate medical education.

As far as the curriculum is concerned, it will be fully effective only if carefully designed for the benefit of the student and based on sound educational principles. A good curriculum is one that has been cooperatively designed by the faculty, which in turn is fully aware of the objectives and responsibilities of the institution. Such a curriculum will always be developed with the student as the key figure, incorporating the perspective and balance essential to attaining the objectives desired. A good curriculum cannot exist when there is lack of faculty understanding of program objectives or where there is a dearth of intercommunication and participation in its development.

By the time a student has completed his undergraduate medical program, he should possess a reasonable understanding of science, man, his health, diseases, and disabilities. He should have developed a genuine spirit of curiosity and be in possession of methods of study which foster the accumulation of facts and the making of observations that lead to new knowledge and the wisdom to utilize it. This should be only a healthy beginning, for, as Sherlock Holmes is supposed to have commented, "Like all other arts, the science of deduction and analysis is one that can only be acquired by long and patient study, nor is life long enough to allow any mortal to attain the highest possible perfections in it." However, during this period of study the medical student should have, as Deitrick and Berson state,[1] "experienced the satisfaction of facing, studying, understanding, and mastering by himself problems of science or of a patient's illness." If this has been the case, the foundation will be secure, basic medical education will have served its purpose, and the young physician will continue to gain the satisfactions emanating from continuous study, and constantly increasing knowledge and understanding.

It is important that medical education aid in developing competence, not only in individual endeavor but also in the concept of effective cooperation and teamwork. The tremendous advances of knowledge in the field o science and their application to medicine in recent year have augmented the necessity of cooperative teamwor as well as continuous education. The more firm th knowledge of basic sciences, the broader the factua information possessed, and the more intelligently phy sicians organize their knowledge, the greater the scientific service they can render their patients. In additio however, every physician who deals with people mus possess a genuine understanding of human beings an a sympathy for those aspects of medicine which transcend pure science. Here is where nothing can replac "precept and example" on the part of medical teache and other members of the medical profession in helpin to mold the student and young professional into the pa tern of the true physician who can serve his fellow me best in their over-all needs.

As each school continuously reevaluates its own pr gram, there is opportunity to determine how closely comes to fulfilling the definition and function of a med cal school as indicated by this midcentury concept.

Interesting and stimulating developments are co stantly taking place in the field of medical education. retrospect, the impression cannot be avoided that th increased interest in self-evaluation of curriculum techniques, and methodology has been given gre impetus as a result of the improved intercommunic tion of recent years. Undoubtedly, the increasing valu of medical and other scientific society meetings durin recent years has played an important role. Howeve the events that seem to have made the greatest in mediate impact on the administrative officers and facu ties of medical schools began with the Conference o Psychiatric Education[2] in 1951 held under the sponso ship of the American Psychiatric Association and th Association of American Medical Colleges. This stimulating and successful conference was followed by on on preventive medicine in medical schools[3] held a Colorado Springs in 1952 and cosponsored by th Conference of Professors of Preventive Medicine an the Association of American Medical Colleges. Thes conferences were made possible through generous support from organizations such as the Rockefeller Foundation, the Commonwealth Fund, the National Foundatio for Infantile Paralysis, the John and Mary R. Markl Foundation, the National Tuberculosis Association, th Metropolitan Life Insurance Company, the Albert an Mary Lasker Foundation, the W. K. Kellogg Foundation, and the United States Public Health Service. Medical education owes these private and public agencie sincere appreciation for the encouragement, assistance and support given during recent years that have made possible these valuable conferences and institutes.

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[2] Psychiatry and Medical Education: Report of the 1951 Conference on Psychiatric Education Held at Cornell University, Washington, D. C., American Psychiatric Association, 1952.

[3] Preventive Medicine in Medical Schools: Report of Colorado Springs Conference: November 1952, J. M. Educ. 28: 1-123 (Oct., pt. 2) 1953.

These two background conferences were carefully planned to evaluate and compare what was being done by the various medical schools and to develop suggestions for improving methods of education in these areas. Those who attended these conferences carried their reactions over to the group attending the subsequent meetings of the Association of American Medical Colleges, as well as directly back to their respective faculty groups. The stimulating success of these initial conferences has been followed by the first two of a series of six annual teaching institutes that have been conducted by the Association of American Medical Colleges. The first of these was held at Atlantic City, N. J., in October, 1953, and covered the area of physiology, biochemistry, and pharmacology.[4] In October of 1954, the teaching institute covering the area of pathology, microbiology, immunology, and genetics was held at French Lick Springs, Ind.[5] The 1955 teaching institute to be held preceding the Association of American Medical Colleges meeting in October will cover the fields of anatomy, histology, embryology, and anthropology. Currently, the schedule calls for a 1956 teaching institute on medical ecology, 1957 teaching institute on clinical teaching, including the internship, and one on specialty training and the continuing education of the physician in 1958. It is to be anticipated that these institutes will continue to stimulate further and continuous curriculum modification, as well as enhance the effective utilization of successful educational experimentation, methods, and technics.

At the annual Congress on Medical Education and Licensure in February, 1955,[6] the Council on Medical Education and Hospitals conducted for the first time a full day conference dealing with a specific area of interest in postgraduate medical education. This conference was centered around "The Potential Use of Television in Postgraduate Medical Education." The morning session of the regular Council program dealt with a symposium on "Legal Medicine in Undergraduate Medical Education" and the afternoon session with a symposium on "The Future of the Internship."

In cooperation with the Federation of State Medical Boards of the United States, the Association of American Medical Colleges, and the American Hospital Association, the Council has been endeavoring to aid in the development of a more satisfactory means of evaluation of graduates of foreign medical schools. Numerous meetings have been conducted to date and suggested basic policies outlined. Currently, the study is still in progress. It is hoped that further progress toward a satisfactory solution to this problem will be continued during the years ahead, as the lack of such solution has significant potential impact on both medical education and licensure in this country and should be solved in the interest of public welfare and service.

The completion of the survey of postgraduate medical education in the United States and the publication of the series of articles in THE JOURNAL [7] covering its various aspects should be of interest to medical educators. This report indicates that medical school faculties are undoubtedly destined to play a role of increasing importance in this area of continuing medical education as time goes on. Medical schools might well be advised to take a careful look at their own past efforts in this area of medical education. It is important for medical educators to study and analyze such matters as the objectives and content, the best educational methods to utilize in this field, the most desirable time and place arrangements, sponsorship, financing, and challenges of postgraduate medical education. Its further development must be sound and rewarding to all who seek it. Its development must not interfere with, but should enhance, undergraduate medical education and research. Continuing medical education will need the careful thinking of medical educators and of the medical profession in cooperative planning towards the attainment of maximum value from time and effort invested on the part of both groups.

Medical Schools

APPROVED MEDICAL SCHOOLS

During 1954-1955, the University of California at Los Angeles completed the initial development of its four year undergraduate program in medicine and was granted full approval by the Council on Medical Education and Hospitals. It has also become a member of the Association of American Medical Colleges. There are now 75 approved four year schools of medicine and six approved schools of basic medical sciences, for a total of 81 approved institutions in the United States (table 1). Currently there are 11 approved four year medical schools and one approved school of basic medical science in Canada (table 2).

This year these tables on approved medical schools and schools of the basic medical sciences in the United States and in Canada have been modified and enlarged so as to include more summary data on each medical school. This has obviated the need for the annual reduplication of the short historical summary of the schools heretofore included at the end of the report. The current data includes the name of the school, its location, ownership, year of organization, current tuition, dates of next academic year, premedical years of study required, number of students by class, part-time and special students, number of graduates, and the executive officer of the institution. Data for the Canadian schools also includes the enrollment of students in the first and second premedical years, those in the fifth medical year, as well as those in a required intern year where indicated.

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[4] Association of American Medical Colleges: Report of the First Teaching Institute on Physiology, Biochemistry, and Pharmacology, 1953, J. M. Educ. **29**: 1-196 (July, pt. 2) 1954.

[5] Association of American Medical Colleges: Report of the Second Teaching Institute on Pathology, Microbiology, Immunology and Genetics, 1954, J. M. Educ. **30**: 1-164 (Sept., pt. 2) 1955.

[6] Proceedings of the Fifty-First Annual Congress on Medical Education and Licensure, 1955, Chicago, American Medical Association, to be published.

[7] Vollan, D. D.: Scope and Extent of Postgraduate Medical Education in the United States, J. A. M. A. **157**: 703-708 (Feb. 26) 1955; The Physician as a Lifelong Student, ibid. **157**: 912-920 (March 12) 1955; Objectives and Content of Postgraduate Medical Education, ibid. **157**: 1119-1125 (March 26) 1955; Educational Methods in Postgraduate Teaching, ibid. **157**: 1302-1309 (April 9) 1955; Time and Place Arrangements of Postgraduate Courses for Practicing Physicians, ibid. **157**: 1492-1498 (April 23) 1955; Sponsorship and Administration of Postgraduate Medical Education, ibid. **158**: 39-43 (May 7) 1955; Financing Postgraduate Medical Education, ibid. **158**: 184-187 (May 21) 1955; Future of Postgraduate Medical Education, ibid. **158**: 395-399 (June 4) 1955.

TABLE 1.—*Approved Medical Schools and Schools of Basic Medical Sciences in the United States*

State	No.	Four Year Medical Schools *	Ownership †	Year Organized	Tuition Resident	Tuition Non-resident	1955-1956 Academic Year Begins	1955-1956 Academic Year Ends	Minimum Pre-medical Requirement by Years	Students by Classes, 1954-1955 1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	Total	Part-Time and Special Students ‡	Graduates 7-1-54 to 6-30-55		Marginal Number
Ala.	1	Medical College of Alabama, Birmingham	S	1943	$ 445	$ 695	9-14-55	5-27-56	3	82	74	74	80	310	4	80	James J. Durrett, M.D., Dean	1
Ark.	2	University of Arkansas School of Medicine, Little Rock	S	1879	380	...	9-12-55	6- 2-56	3	92	83	65	79	319	3	79	F. Douglas Lawrason, M.D., Provost	2
Calif.	3	College of Medical Evangelists, Loma Linda; Los Angeles	P	1909	1,292	1,292	8-31-55	6- 1-56	4	97	106	91	92	386	9	92	Walter E. Macpherson, M.D., Dean	3
	4	University of Southern California School of Med., Los Angeles	P	1885	920	920	9-19-55	6- 9-56	3	69	68	70	68	275	0	75	Gordon E. Goodhart, M.D., Dean	4
	5	Stanford University School of Medicine, San Francisco	P	1908	870	870	9-26-55	6-13-56	3	60	58	64	60	242	0	116 §	Windsor Cooper Cutting, M.D., Dean	5
	6	University of California School of Medicine, San Francisco	S	1864	334	584	9-12-55	6- 6-56	3	77	73	79	79	308	0	78	John B. Lagen, M.D., Acting Dean	6
	7	University of California School of Medicine, Los Angeles	S	1951	167	292	9-12-55	6- 6-56	3	49	32	33	26	140	0	26	Stafford Warren, M.D., Dean	7
Colo.	8	University of Colorado School of Medicine, Denver	S	1883	665	2,665	9-26-55	6- 8-56	3	85	76	71	76	308	2	75	Robert C. Lewis, Ph.D., Dean	8
Conn.	9	Yale University School of Medicine, New Haven	P	1812	831	831	9-21-55	5-30-56	3	79	83	79	79	320	0	79	Vernon Lippard, M.D., Dean	9
D. C.	10	Georgetown University School of Medicine, Washington	P	1851	960	960	9-12-55	5-19-56	4	108	117	113	110	448	0	110	Francis M. Forster, M.D., Dean	10
	11	George Washington University School of Medicine, Washington	P	1825	850	850	9-19-55	6- 6-56	3	102	92	88	80	362	0	80	Walter A. Bloedorn, M.D., Dean	11
	12	Howard University College of Medicine, Washington	P	1869	611.75	611.75	9-19-55	6- 8-56	3	73	73	61	70	277	6	75	Robert S. Jason, M.D., Dean	12
Ga.	13	Emory University School of Medicine, Emory University	P	1854	800	800	9-15-55	6- 8-56	3	75	71	72	69	287	1	69	Richard Hugh Wood, M.D., Dean	13
	14	Medical College of Georgia, Augusta	S	1828	390	690	9-15-55	6- 2-56	3	101	87	71	77	336	7	76	Harry B. O'Rear, M.D., Dean	14
Ill.	15	Chicago Medical School, Chicago	P	1912	664	664	10- 3-55	6-16-56	4	73	71	73	64	281	0	63	John J. Sheinin, M.D., President	15
	16	Northwestern University Medical School, Chicago	P	1859	930	930	9-28-55	6-15-56	3	130	124	139	139	532	1	138	Richard H. Young, M.D., Dean	16
	17	Stritch School of Medicine of Loyola University, Chicago	P	1915	675	675	9-26-55	6-16-56	3	89	81	84	79	333	0	79	John F. Sheehan, M.D., Dean	17
	18	University of Chicago, The School of Medicine, Chicago	P	1924	900	900	9-28-55	6- 8-56	3	72	65	74	67	278	0	67	Lowell T. Coggeshall, M.D., Dean, Division of Biological Sciences	18
	19	University of Illinois College of Medicine, Chicago	S	1882	295.50	583.50	9-26-55	6-15-56	3	166	158	163	169	656	0	170	Granville A. Bennett, M.D., Dean	19
Ind.	20	Indiana University School of Medicine, Bloomington; Indianapolis	S	1903	320	600	9-19-55	6- 5-56	3	154	150	142	134	580	2	131	John D. Van Nuys, M.D., Dean	20
Iowa	21	State University of Iowa College of Medicine, Iowa City	S	1869	304	614	9-22-55	6- 8-56	3	120	113	116	107	456	1	107	Norman B. Nelson, M.D., Dean	21
Kan.	22	University of Kansas School of Medicine, Lawrence; Kansas City	S	1880	480	930	9- 8-55	5-31-56	4	102	104	120	123	449	0	121	W. Clarke Wescoe, M.D., Dean	22
Ky.	23	University of Louisville School of Medicine, Louisville	M	1837	800	1,200	9-12-55	6- 2-56	3	100	94	96	91	381	0	91	J. Murray Kinsman, M.D., Dean	23
La.	24	Louisiana State University School of Medicine, New Orleans	S	1931	120	520	9- 6-55	6- 2-56	3	126	101	97	118	442	4	118	William W. Frye, M.D., Dean	24
	25	Tulane University of Louisiana School of Medicine, New Orleans	P	1834	800	800	9-12-55	5-28-56	3	137	121	126	131	515	0	129	M. E. Lapham, M.D., Dean	25
Md.	26	Johns Hopkins University School of Medicine, Baltimore	P	1883	939.20	939.20	10- 3-55	6-12-56	4	80	65	70	73	288	0	73	Philip Bard, Ph.D., Dean	26
	27	University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore	S	1807	635	785	9-22-55	6- 9-56	3	88	95	100	100	383	0	100	William S. Stone, M.D., Dean	27
Mass.	28	Boston University School of Medicine, Boston	P	1873	875	875	9-12-55	5-26-56	3	75	69	75	77	296	0	76	Chester S. Keefer, M.D., Director	28
	29	Harvard Medical School, Boston	P	1782	1,055	1,055	9-23-55	6-14-56	2	115	114	153	140	522	0	139	George Packer Berry, M.D., Dean	29
	30	Tufts College Medical School, Boston	P	1893	865	865	9-21-55	6-11-56	3	112	112	112	110	446	0	110	Joseph M. Hayman, Jr., M.D., Dean	30
Mich.	31	University of Michigan Medical School, Ann Arbor	S	1850	400	700	9-26-55	6-16-56	3	205	183	197	176	761	1	173	A. C. Furstenberg, M.D., Dean	31
	32	Wayne University College of Medicine, Detroit	M	1885	537	...	9-12-55	6- 9-56	3	75	70	62	68	275	0	67	Gordon H. Scott, Ph.D., Dean	32
Minn.	33	University of Minnesota Medical School, Minneapolis	S	1883	361.50	700	9-26-55	7-15-56	3	127	115	120	116	478	0	116	Harold S. Diehl, M.D., Dean of Medical Sciences	33
Mo.	34	St. Louis University School of Medicine, St. Louis	P	1901	900	900	9-13-55	6- 1-56	3	125	122	115	117	479	14	116	James W. Colbert, Jr., M.D., Dean	34
	35	Washington University School of Medicine, St. Louis	P	1842	906	906	9-12-55	6- 2-56	3	87	84	97	99	367	0	97	Carl V. Moore, M.D., Dean	35
Neb.	36	Creighton University School of Medicine, Omaha	P	1892	812	812	9-19-55	6- 2-56	3	76	76	78	80	310	0	79	F. G. Gillick, M.D., Dean	36
	37	University of Nebraska College of Medicine, Omaha	S	1881	450	615	9-21-55	6-16-56	3	86	81	83	83	333	1	81	James P. Tollman, M.D., Dean	37
N. Y.	38	Albany Medical College, Albany	P	1838	1,007	1,007	9- 6-55	5-26-56	3	64	51	49	51	215	0	51	Harold C. Wiggers, Ph.D., Dean	38
	39	University of Buffalo School of Medicine, Buffalo	P	1847	876	876	9-19-55	6- 9-56	4	80	72	61	71	284	1	70	Stockton Kimball, M.D., Dean	39
	40	Columbia University College of Physicians and Surgeons, New York City	P	1767	900	900	9-12-55	5-31-56	3	120	115	118	113	466	0	113	Willard C. Rappleye, M.D., Dean	40

	41	Cornell University Medical College, New York City	P	1898	900	900	9-15-55	6- 6-56	3	83	83	87	85	338	0	85	E. Hugh Luckey, M.D., Dean	41
	42	New York Medical College, Flower and Fifth Avenue Hospitals, New York City	P	1858	896	896	9-12-55	5-26-56	3	128	128	109	116	481	0	116	Ralph E. Snyder, M.D., Exec. Dean	42
	43	New York University College of Medicine, New York City	P	1841	917	917	9-12-55	5-19-56	3	137	126	142	135	540	0	135	Donal Sheehan, M.D., Dean	43
	44	State University of New York College of Med., New York City	S	1858	715	715	9-19-55	6- 9-56	3	151	152	148	138	589	3	138	Howard Potter, M.D., Dean	44
	45	State University of New York College of Medicine, Syracuse	S	1872	715	715	9-12-55	6- 9-56	3	76	67	70	71	284	0	71	William R. Willard, M.D., Dean	45
	46	Univ. of Rochester School of Medicine and Dentistry, Rochester	P	1925	800	800	9-12-55	6-10-56	3	72	69	65	68	274	1	67	Donald G. Anderson, M.D., Dean	46
N. C.	47	Duke University School of Medicine, Durham	P	1930	900	900	10- 3-55	6- 9-56	3	77	76	80	78	311	0	77	Wilburt C. Davison, M.D., Dean	47
	48	Bowman Gray School of Medicine of Wake Forest College, Winston-Salem	P	1902	750	750	10- 3-55	6- 9-56	3	54	52	47	51	204	0	51	C. C. Carpenter, M.D., Dean	48
	49	University of North Carolina School of Medicine, Chapel Hill	S	1890	670.50	1,270.50	9-13-55	6- 4-56	3	66	58	58	59	241	0	59	W. Reece Berryhill, M.D., Dean	49
Ohio	50	University of Cincinnati College of Medicine, Cincinnati	M	1819	616.75	741.75	9-26-55	6- 2-56	3	90	80	85	90	345	0	89	Stanley E. Dorst, M.D., Dean	50
	51	Western Reserve University School of Medicine, Cleveland	P	1843	800	800	9-21-55	6-15-56	3	84	77	78	87	326	1	86	Joseph T. Wearn, M.D., Dean	51
	52	Ohio State University College of Medicine, Columbus	S	1914	525	780	9-27-55	6- 8-56	3	150	137	143	137	567	0	136	Charles A. Doan, M.D., Dean	52
Okla.	53	University of Oklahoma School of Medicine, Oklahoma City	S	1900	200	400	9-12-55	5-19-56	3	96	94	98	100	388	0	100	Mark R. Everett, Ph.D., Dean	53
Ore.	54	University of Oregon Medical School, Portland	S	1887	471	651	10- 3-55	6-15-56	3	78	66	75	80	299	21	77	D. W. E. Baird, M.D., Dean	54
Pa.	55	Hahnemann Medical College and Hospital of Philadelphia, Philadelphia	P	1848	847	847	9-12-55	6- 9-56	3	107	99	95	92	393	0	92	Harold A. Taggart, M.D., Acting Dean	55
	56	Jefferson Medical College of Philadelphia, Philadelphia	P	1825	800	800	9-12-55	6-13-56	3	175	166	172	169	682	0	169	George Allen Bennett, M.D., Dean	56
	57	Temple University School of Medicine, Philadelphia	P	1901	810	810	9- 6-55	6-14-56	3	131	113	127	126	497	1	125	William N. Parkinson, M.D., Vice President and Dean	57
	58	University of Pennsylvania School of Medicine, Philadelphia	P	1765	950	950	9- 6-55	6-13-56	4	130	119	126	130	505	0	130	John McK. Mitchell, M.D., Dean	58
	59	Woman's Medical College of Pennsylvania, Philadelphia	P	1850	860	860	9-12-55	6- 9-56	3	51	49	41	40	181	0	40	Marion Fay, Ph.D., Dean	59
	60	University of Pittsburgh School of Medicine, Pittsburgh	P	1886	800	800	9-12-55	6- 9-56	3	100	93	87	97	377	2	96	William S. McEllroy, M.D., Dean	60
S. C.	61	Medical College of South Carolina, Charleston	S	1823	437.50	1,537.50	9- 8-55	6- 7-56	3	79	80	67	67	293	0	66	John T. Cuttino, M.D., Dean	61
Tenn.	62	University of Tennessee College of Medicine, Memphis	S	1876	450	675	7- 7-55	6-13-56	3	221	194	204	185	804	14	188	O. W. Hyman, Ph.D., Vice President and Dean	62
	63	Meharry Medical College, Nashville	P	1876	640	640	9-19-55	5-30-56	3	72	59	66	63	260	0	62	Daniel T. Rolfe, M.D., Dean	63
	64	Vanderbilt University School of Medicine, Nashville	P	1874	810	810	9-26-55	6- 3-56	3	53	51	52	47	203	1	48	John B. Youmans, M.D., Dean	64
Texas	65	University of Texas Southwestern Medical School, Dallas	S	1943	110	...	9-13-55	6- 2-56	3	108	90	101	101	400	11	100	A. J. Gill, M.D., Asst. Dean	65
	66	University of Texas School of Medicine, Galveston	S	1890	92	312	9-12-55	6- 2-56	3	172	146	154	150	622	0	148	T. G. Blocker, Jr., M.D., Acting Chairman, Interim Exec. Comm.	66
	67	Baylor University College of Medicine, Houston	P	1900	790	790	9-12-55	5-28-56	3	85	97	79	92	353	5	92	Stanley Olson, M.D., Dean	67
Utah	68	University of Utah School of Medicine, Salt Lake City	S	1905	480	830	9-26-55	6-22-56	3	56	53	48	53	210	4	53	Philip B. Price, M.D., Acting Dean	68
Vt.	69	University of Vermont College of Medicine, Burlington	S	1822	576	1,026	9- 9-55	6-10-56	4	52	47	45	47	191	1	46	George A. Wolf, M.D., Dean	69
Va.	70	University of Virginia School of Medicine, Charlottesville	S	1827	461	861	9-19-55	6-11-56	3	76	79	65	64	284	0	63	Thomas Harrison Hunter, M.D., Dean	70
	71	Medical College of Virginia, Richmond	S	1838	566	891	9- 8-55	5-29-56	3	84	77	106	100	367	0	100	John B. Truslow, M.D., Dean	71
Wash.	72	University of Washington School of Medicine, Seattle	S	1945	390	585	9-28-55	6- 3-56	3	76	69	71	70	286	3	70	George N. Aagaard, M.D., Dean	72
Wis.	73	University of Wisconsin Medical School, Madison	S	1907	310	660	9-19-55	6-11-56	3	82	83	79	75	319	1	75	John Z. Bowers, M.D., Dean	73
	74	Marquette University School of Medicine, Milwaukee	P	1912	850	850	9-12-55	6- 1-56	3	103	101	93	100	397	9	100	John S. Hirschboeck, M.D., Dean	74
P. R.	75	University of Puerto Rico School of Medicine, San Juan	S	1949	539	539	8-13-55	5-19-56	3	52	46	43	42	183	1	42	E. Harold Hinman, M.D., Dean	75
		Totals								7,310	6,875	6,957	6,916	28,118	136	6,977		
		Schools of Basic Medical Sciences																
Miss.	1	University of Mississippi School of Medicine, University	S	1903	416.50	...	9- 6-55	6- 1-56	3	56	58	..	..	114	0	..	David S. Pankratz, M.D., Dean	1
Mo.	2	University of Missouri School of Medicine, Columbia	S	1845	284	...	9-14-55	6- 6-56	3	45	48	..	..	93	0	..	Roscoe L. Pullen, M.D., Dean	2
N. H.	3	Dartmouth Medical School, Hanover	P	1797	800	800	9-19-55	6-10-56	3	24	23	..	..	47	0	..	Rolf C. Syvertsen, M.D., Dean	3
N. Dak.	4	University of North Dakota School of Medicine, Grand Forks	S	1905	138.50	223.50	9- 6-55	6- 2-56	3	42	42	..	..	84	2	..	Theodore H. Harwood, M.D., Dean	4
S. Dak.	5	Univ. of South Dakota School of Medical Sciences, Vermillion	S	1907	270	480	8-29-55	6- 1-56	3	37	26	..	..	63	4	..	W. L. Hard, Ph.D., Dean	5
W. Va.	6	West Virginia University School of Medicine, Morgantown	S	1912	258	700	9-16-55	5- 4-56	3	32	32	..	..	64	0	..	Edward J. Van Liere, M.D., Dean	6
		Totals								236	229	..	..	165	6	..		
		Grand Totals (Four Year Schools and Schools of Basic Medical Sciences)								7,576	7,104	6,957	6,916	28,583	142	6,977		

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* During the year of this report, the University of Miami School of Medicine, Coral Gables, Fla., had only the first three classes in attendance. Since medical schools are not eligible for full Council approval until all four years are in operation, students enrolled at Miami in 1954-1955 (first year class—69, second year—36, third year—26, total—131) are not included in this and following tables.

† S = state, P = private, M = municipal.

‡ Data for total enrollment in previous years in table 11 include only full-time students.

§ Two classes.

Table 3 summarizes the development and growth of approved medical schools in the United States during the period 1910-1955. It clearly portrays the growth from 66 approved schools graduating 3,165 physicians in 1910 to the present 81 graduating 6,977 in the spring of 1955. The growth of student enrollment in approved schools from 12,530 in 1910 to 28,583 in 1955 has been in keeping with the population growth of the nation during this period and indicates, furthermore, that not only have new schools developed but many older institutions have augmented their facilities so as to educate larger numbers of students as the demand has arisen.

According to classification by ownership, there are now in the United States 41 privately owned, 37 state, and 3 municipal medical schools (table 1).

The relatively rapid turnover of medical school administrative personnel that has occurred during recent years continued during 1954-1955 with the appointment or pending appointment of new executive officers in 11 approved medical schools in the United States. Ten such changes were made in 1953-1954. Institutions which made new administrative personnel adjustments in 1954-1955 include the University of Arkansas, College of Medical Evangelists, Howard University, Chicago Medical School, the University of Maryland, Boston University, New York University, Hahnemann Medical College, University of Texas (Galveston Branch), the University of Utah, and the University of Wisconsin.

NEWLY DEVELOPING MEDICAL SCHOOLS

Table 4 lists the four completely new four year medical schools and the three formerly two year basic medical science schools extending their programs to four year curriculums, that are currently in various stages of development. The table indicates whether a program is entirely new or extended and lists the estimated year of graduation of its first class of physicians. By 1960, therefore, there should be 82 four year medical schools and 3 two year schools of the basic medical sciences in the United States, if these currently developing programs are completed on schedule.

At the University of Miami School of Medicine the outpatient clinic building has been constructed on the grounds of the Jackson Memorial Hospital. It was scheduled for occupancy and activities in June, 1955, and will be the location of the major portion of the fourth year teaching program. Architectural working plans for the basic science building to be erected at the Jackson Memorial Hospital site have been completed. In the meantime, basic science teaching and research activities continue in the building occupied in Coral Gables. Further faculty and curriculum developments have taken place, and the first class is scheduled to complete the undergraduate medical course in June, 1956. A liaison survey visit will be conducted during November, as the school enters its full four year program.

The University of Mississippi School of Medicine has completed its 9 million dollar construction. Faculty development and curriculum planning for the clinical years are well along. As has been the experience in relation to other developmental programs in some of the medical schools of state universities, difficulties have arisen in connection with the establishment of policies regarding employment of clinical faculty personnel. It is to be hoped that this problem has been adjusted on the local level to the mutual satisfaction of the university, the school of medicine, and the medical profession.

At the University of Missouri, all of the primary construction planned for its four year medical school is under way. The 450-bed teaching hospital and outpatient departments are close to completion. Major structural elements of the new Medical Sciences Building are in place, and the building is scheduled for occupancy at the end of the 1955-1956 academic year. Construction is also progressing on the new nursing home. Staffing of the new medical school's faculty is well advanced. The third year curriculum has been established, and the first third year class will initiate its studies in September, 1955, with the first group of candidates for degrees scheduled for graduation in June, 1957.

Construction on the $10,695,000 Basic Sciences Building at the West Virginia University School of Medi-

TABLE 2.—*Approved Medical Schools and Approved*

		Medical Schools	Year Organized	Tuition		1955-1956 Academic Year		Minimum Premedical Requirement by Years
				Resident	Nonresident	Begins	Ends	
Alta.	1	University of Alberta Faculty of Medicine, Edmonton	1913	$300	$300	9- 6-55	4-30-56	3
B. C.	2	University of British Columbia School of Medicine, Vancouver	1949	445	445	9- 6-55	5-12-56	3
Man.	3	University of Manitoba Faculty of Medicine, Winnipeg	1883	451	456	9-12-55	5-19-56	3
N. S.	4	Dalhousie University Faculty of Medicine, Halifax	1867	434	...	9- 6-55	5-17-56	3
Ont.	5	Queen's University Faculty of Medicine, Kingston	1854	469.80	469.80	9-12-55	5- 9-56	2
	6	University of Ottawa Faculty of Medicine, Ottawa	1915	419	719	9- 7-55	6- 1-56	Degree
	7	University of Western Ontario Faculty of Medicine, London	1881	550	550	9-12-55	5-19-56	3
	8	University of Toronto Faculty of Medicine, Toronto	1843	541	541	9-19-55	5-12-56	2
Que.	9	McGill University Faculty of Medicine, Montreal	1823	593	593	9- 7-55	6- 2-56	3
	10	University of Montreal Faculty of Medicine, Montreal	1843	390	465	9-13-55	5-25-56	Degree
	11	Laval University Faculty of Medicine, Quebec	1848	400	600	9- 7-55	6- 1-56	Degree
		Totals	....	...	...	....	....	..
		School of Basic Medical Sciences						
Sask.	1	University of Saskatchewan College of Medicine, Saskatoon	1926	390.50	390.50	9-21-55	6- 9-56	2
		Grand Totals	....	...	...	....	....	..

* Intern and premedical figures not included.

cine has been initiated. At the time of this report, the basic steel construction has been completed.

The Albert Einstein College of Medicine of Yeshiva University is far advanced in its faculty organization and construction program. The new Nathan B. Van Etten and Abraham Jacobi Hospital units are completed and in operation. The first unit of the medical college building under construction adjacent to the hospital site is nearing completion and will be ready for occupancy late in the summer of 1955. The basic curriculum planning has been completed, and the first class has been selected to initiate its studies during the academic year 1955-1956.

Seton Hall College of Medicine is now being developed at the Jersey City Medical Center. The university has consummated a 50 year contract with the city administration that permits the new schools of medicine and dentistry to occupy the 16 story former outpatient building of the Jersey City Medical Center. This building is being remodeled to meet the needs of the two new professional schools for teaching, research, library, and certain clinic accommodations. Under the current agreement the city rents this building to the university and a mutually satisfactory program of maintenance has been consummated. At the present time, faculty organization, curriculum planning, and reconstruction activities are under way. It is anticipated that the program development will make it possible to graduate the first class of physicians in 1960.

School of Basic Medical Sciences in Canada

Students by Classes, 1951-1955												
First Pre-medical Year	Second Pre-medical Year	1st Year	2nd Year	3rd Year	4th Year	Additional Year	Required Intern Year	Total	Part-Time and Special Students	Graduates 7-1-54 to 6-30-55		
..	..	60	56	58	56	..	..	230	0	57	John W. Scott, M.D., Dean	1
..	..	58	53	61	59	..	..	231	0	58	Myron M. Weaver, M.D., Dean	2
..	..	69	52	67	64	..	100	252 *	0	76	Lennox G. Bell, M.D., Dean	3
..	..	58	57	61	53	..	48	229*	0	48	C. B. Stewart, M.B., Dean	4
64	..	63	53	60	60	55	..	291 *	0	55	G. Harold Ettinger, M.D., Dean	5
84	..	64	57	32	47	..	46	200 *	0	48	A. L. Richard, M.D., Dean	6
..	..	61	58	58	60	..	..	237	1	60	J. B. Collip, M.D., Dean	7
130	137	131	146	154	152	..	..	583 *	0	155	J. A. MacFarlane, M.B., Dean	8
..	..	117	96	108	112	..	..	433	0	112	G. Lyman Duff, M.D., Dean	9
..	..	118	108	102	95	..	99	423*	0	91	Wilbrod Bonin, M.D., Dean	10
121	..	129	135	120	79	..	135	463*	0	134	Jean-Baptiste Jobin, M.D., Dean	11
349	137	928	871	881	837	55	428	3,572	1	894		
..	..	40	32	..	..	..	..	72	0	..	J. Wendell Macleod, M.D., Dean	1
349	137	968	903	881	837	55	428	3,644	1	894		

The developmental program at the University of Florida School of Medicine at Gainesville is well under way. Building construction has been initiated for the Medical Sciences Building which will include both basic science and clinical wings, library, and auditorium. The completed center will include a hospital unit of about 350 beds for patients with acute conditions, an ambulant patient facility with 50 beds, and clinic facilities. Faculty organization and further curriculum planning are currently being developed. It is anticipated that the first class of students will be candidates for degrees in the spring of 1960.

In last year's Education Number of THE JOURNAL it was reported that the University of Kentucky's board of trustees had formally sanctioned the establishment of a medical school in Lexington and that funds were to be sought from the Kentucky General Assembly. The Kentucky Medical Sciences Development Foundation was created to promote interest in the project and to receive funds from private sources as well as to file articles of incorporation and formulate building plans tentatively for July 1, 1955. At the present time, the foundation is conducting a program of public information as to the medical needs within the state. It was also reported last year that the North Dakota legislature had directed its School of Medicine to admit a third year class by 1955 and that a full four year program be in operation by 1956. Currently this development is being held in abeyance.

There has been consideration of the possibility of the development of a medical school at Hartford, Conn., as a unit of the University of Connecticut. In 1953 a commission was authorized by the state legislature to study the feasibility of such a development. Subsequently the commission reported favorably on the project and also recommended that the state of Connecticut participate in the New England Regional Compact for Higher Education, including medicine. The commission recom-

TABLE 3.—*Schools, Students, and Graduates in Medicine, 1910-1955*

	Rating of Schools			Student Enrollment			Physicians Graduated		
	Approved		Unapproved	Approved		Unapproved	Approved		Unapproved
Yr.	A	B	C	A	B	C	A	B	C
1910	66	43	22	12,530	6,944	2,052	3,165	854	421
1915	67	22	15	11,314	2,688	909	2,629	688	219
1920	70	10	8	12,559	731	798	2,680	162	205
1925	71	3	6	17,462	554	184	3,842	118	14
1930	76	..	..	21,597	...	...	4,765	...	...
1935	77	..	..	22,888	...	...	5,101	...	...
1940	77	..	..	21,271	...	...	5,097	...	...
1945	77	..	..	24,028	...	...	5,136	...	...
1950	79	..	..	25,103	...	...	5,553	...	...
1955	81	..	..	28,583	...	...	6,977	...	...

mended that the trustees of the University of Connecticut be directed to proceed forthwith in the development of the medical school and asked for a special bond issue of 6 million dollars for primary financing. Later study resulted in the introduction of a substitute measure directing the appointment of a new commission, including members of the board of trustees of the University of Connecticut, to proceed with preliminary planning for a medical school, site determination, and appropriation of $50,000 for initial costs. Since the recent Connecticut legislature adjourned prior to consideration of this bill, no further action will take place until the next biennium unless a special session shall be called.

A year ago, some consideration was being given to the establishment of a medical school in Toledo, Ohio. At the present time there is no indication that such a development may occur in the immediate future.

The Massachusetts House has rejected legislation calling for the establishment of medical and dental schools at the University of Massachusetts. Massachusetts has joined in a five state pact which may eventually evolve into the establishment of a regional medical school.

TABLE 4.—*Medical Schools Currently Developing Four Year Programs*

Name of Institution	New or Extended Development	Estimated Graduation Date of First Class
University of Miami School of Medicine.......	Completely new school	1956
University of Mississippi School of Medicine.......	Formerly two year school	1957
University of Missouri School of Medicine.......	Formerly two year school	1957
West Virginia University School of Medicine.......	Formerly two year school	1958-1959
Albert Einstein College of Medicine..............	Completely new school	1959
Seton Hall College of Medicine and Dentistry..	Completely new school	1960
University of Florida School of Medicine.......	Completely new school	1960

From various quarters there is constant representation of increased needs for medical personnel. Needs for additional facilities for the education of physicians are exceedingly difficult to determine and require careful analysis of who represents what need. No one will deny the fact that, with a constantly growing population and with the ever-increasing health consciousness of the nation, there will be a constant and continuous demand for increased numbers of medical personnel and that this will necessitate new medical schools and possible augmentation of the facilities and faculty personnel of those now in existence. The many areas such as medical administration, teaching, research, military services, veterans administration, and public health services unquestionably remove many physicians from active private medical practice today. On the other hand, there are now large numbers of personnel trained and employed in ancillary fields supporting and assisting in certain aspects of diagnosis and medical care under medical supervision. Needs are presented and interpreted differently by different groups. Some indicate needs primarily in terms of distribution of personnel, others in terms of the type of training, experience, or service considered to be desirable, while others simply echo the idea of need with no indication of just what the need is except for vague concepts.

Increased knowledge and its utilization with the associated rapid expansion of specialization accompanied by demands for personnel in these fields have materially changed the over-all practice of medicine in recent years. Social readjustments are also making their impact on the practice of medicine. These readjustments have been relatively abrupt, and neither the general public nor the profession have become fully adjusted to them. The estimates of need for medical personnel have been reported in such studies as America's Resources of Specialized Talent,[8] which constitutes the Report of the Commission on Human Resources and Advanced Training. The figures on needs in medicine in this report are largely drawn from the report of the President's Commission on the Health Needs of the Nation[9] and the Health Manpower Source Book, Section I, issued by the Federal Security Agency.[10] Probably no analytical reports of estimated requirements that have been developed in this rapidly changing scene can accurately represent more than the existence of felt needs in some areas.

It appears, therefore, that one of the constant challenges confronting medical educators and all those interested in and concerned with medical teaching, research, and the provision of adequate medical care involves efforts to evaluate effectively current and projected needs for personnel in this field and the facilities, faculty personnel, and financing essential to their development. The new medical schools currently undergoing development will aid in meeting increasing needs for medical personnel in the years immediately ahead. What adjustments are needed, either in augmentation of student capacity of existing medical schools or in the development of new medical schools during the next quarter of a century? It is apparent that anything in the way of a reasonable forecast for even 10 years ahead involves a constant study and analysis of the whole social structure of the nation today in an effort to meet the needs for personnel in the varied and increasingly complex period that confronts it. The number of professionally trained personnel desirable in any area of human endeavor is not as simple as a ratio of such personnel per unit of population. It is far more dependent on the existing knowledge in any given area and the application of such knowledge to human activity in all phases. The field of medicine, because of its important role in human welfare and happiness and its direct implications in all other areas of activity, will continue to present demands for personnel augmentation in keeping with population growth and other factors. With the financing of medical education as difficult and precarious as it has been in recent years, it is of paramount impor-

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8. *Commission on Human* Resources and Advanced Training: America's Resources of Specialized Talent, New York, Harper & Brothers, 1954, p. 332.

9. Building America's Health, Report to the President by the President's Commission on the Health Needs of the Nation: vol. 1, Findings and Recommendations, U. S. Government Printing Office, 1954, p. 13.

10. Pennell, M. Y., and Altenderfer, M. E.: Health Manpower Source Book, Section I, Physicians, Federal Security Agency, United States Public Health Service, 1952.

tance that continued effort be made to stabilize more effectively existing programs and to aid in clearly forecasting the implications in terms of facilities, faculty, and financing of any new programs which may develop.

DEVELOPMENTS OF INTEREST IN MEDICAL SCHOOLS, 1954-1955

In their annual reports to the Council, many of the medical schools indicate major developments in one or several aspects of their programs. These involve changes in curriculum, altered or new approaches to certain aspects of undergraduate or graduate medical education, and readjustments in financing. There continues to be deep interest in curriculum modifications in keeping with the changing emphases on various aspects of medical education. The following material has been selected from the annual reports as illustrative of the continued dynamic thinking and action generally apparent in medical schools throughout the nation.

At the Stanford University School of Medicine, curriculum studies are being conducted in relation to the ultimate transfer of the clinical years of study from the San Francisco site to the Stanford campus. A trial run has been made at integrating courses of the second year in the spring quarter of 1954-1955 and continuing the plan for the next year. Similar basic planning is being conducted at the Indiana University School of Medicine and at the University of California (Berkeley-San Francisco) in view of the impending transfers of their first year programs to the main medical school campuses. On completion of the plans currently under way in these three schools, they will each have opportunity for the development of maximum cooperation and integration between basic medical sciences and the clinical areas which have been difficult to achieve with divided medical campuses.

On Oct. 1, 1954, the School of Medicine of the University of Miami assumed control of the professional and instructional activities of the Jackson Memorial Hospital in accord with earlier agreements made by the University, the Dade County Commissioners, and the Dade County Medical Society. A medical board has been established with representation from the faculty, the hospital administration, and the courtesy staff with the dean of the School of Medicine as its chairman.

The third and fourth year curriculums of the Medical College of Georgia has been reorganized on the "block" system. In the third year, medicine and surgery have each been allocated 12 weeks, with obstetrics-gynecology and pediatrics each being assigned 6 weeks. In the fourth year, medicine is assigned 12 weeks, of which 6 weeks will be spent in domiciliary medicine, with surgery, obstetrics-gynecology, pediatrics, and electives each having a 6 weeks' assignment. Faculty reorganization on a strict full-time basis has been initiated.

Emory University School of Medicine reports that an anonymous gift to the university has been made to underwrite the minimum budget of the institution and to stabilize its basic financing. At Emory, the division of basic sciences in the health services is now responsible for instruction in the schools of medicine, dentistry, nursing, and pharmacy, as well as in the graduate school of the university. This division is administered with an understanding of its full responsibilities to students and faculties in each of these fields, and close administrative and functional liaison is maintained with them. There are now 25 members of the clinical faculty in the partnership arrangements associated with the development of the Emory University clinic. The university believes that this clinic program as it is now developing will enhance teaching, research, and service, as well as certain aspects of financing.

At the Indiana University School of Medicine, as previously indicated, studies are being made on the integration of teaching in the basic science departments in anticipation of the transfer of the first year of instruction from Bloomington to the Indianapolis campus. Greater emphasis is being given also to improved opportunities for graduate education as new facilities are made available.

A "Senior Day" under sponsorship of the Kentucky State Medical Association was inaugurated at the University of Louisville School of Medicine on April 18, 1955. The trustees of the university have authorized the expansion of the first year class from 100 to 124 students, limiting the additional places to Kentucky residents if a sufficient number qualify.

Curriculum changes now under way at the University of Maryland will place all anatomy in the first semester of the first year. Correlation between departments is being promoted. Augmentation of financial support has provided for salary increases in the basic sciences and some adjustments in the clinical area. Provision has been made for the engagement of additional full-time and part-time faculty personnel.

Boston University School of Medicine has reorganized the third year curriculum to provide for a decrease in the number of hours devoted to lectures and increased time in the clinics, allowing more free time for elective work and establishing an improved examination schedule. The teaching of physical medicine has been incorporated into the third year program.

At Tufts College Medical School, the general medical, pediatric, psychiatric, and children's psychiatric clinics are cooperating in an effort to provide students with a realistic experience in ambulatory medicine and home care. The program is designed to permit continuity of observation of patients. The student will see a patient, adult or child, for the first time in the home and send him to the "office" (student assigned area) in the Boston dispensary if further study or follow-up is indicated or follow a patient from the "office" to the home. The same instructors will supervise the student's work both in the outpatient department and on the home service. The faculty believes that a two month period should permit the student to follow an acute illness from onset to recovery and to obtain a fair appreciation of the course and problems of chronic illness. On his "office" days the student will also actually work with any of his patients referred to the Rehabilitation Institute of the New England Medical Center. If hospitalization is required, the student will follow his patient to the ward. The objective of the program is to provide a basic orientation for family practice.

During the past year, physical diagnosis at the Creighton University School of Medicine has been taught as an interdepartmental project in the second year. The course is now designated as "Clinical Diagnosis." Some aspects of histology formerly taught in the department of anatomy have been integrated into the course in pathology. Material reduction of didactic assignments in the third and fourth years have facilitated the establishment of more effective clinical clerkships.

Albany Medical College reports continuation study by the committee charged to survey and plan for curriculum improvements. Although no major alterations have been recommended to date, there has been a reduction of departmental lectures in favor of interdepartmental "panel" instruction with emphasis on more active student participation. This has been associated with greater inclusion of basic science faculty members as participants in the panels. A series of applied basic science clinics has been introduced into the first year curriculum and is reported to have been enthusiastically received by both students and staff. Albany Medical College has taken increased interest in the field of continuing medical education. During the 1954-1955 period, the postgraduate medical education program was expanded and well received. New approaches to postgraduate medical teaching are currently being developed.

TABLE 5.—*Cost of Completed and Estimated Cost of Initiated Construction and Equipment in Medical Schools, 1954-1955*

	Schools in United States				Schools in Canada	
Purpose	No. Completed	Cost	No. Initiated	Cost	No. Initiated	Cost
Basic medical sciences teaching and research..	15	$46,981,000	15	$60,330,029	2	$2,100,000
Hospital and clinic teaching and research..	13	47,957,000	6	19,395,000	1	1,500,000
Dormitory	3	4,446,986	1	1,246,259	..	....
Totals		$99,384,986		$80,971,288		$3,600,000

The State University of New York College of Medicine at Syracuse reports the establishment of a student honor system during 1954-1955. Student participation on some faculty committees has been developed.

At the University of Oklahoma School of Medicine, a nucleus of full-time psychiatrists has been appointed to develop the teaching program in this field. Cooperatively the departments of anatomy, medicine, psychiatry, and pediatrics have developed a first year course in normal growth and development. A department of physical medicine has been developed under full-time leadership and a school of physical therapy established. Industrial medicine now is organized and taught by a full-time member of the staff of the department of preventive medicine.

Additional support from the M. D. Anderson Foundation has made it possible for the Baylor University College of Medicine to develop an enlarged program in psychiatry at both undergraduate and residency training levels. A program of research with emphasis on the pharmacological aspects of mental disorder has been initiated. An effort is being made to coordinate community facilities in the field of mental disorders. During the past year advances have been made in the over-all integration of the Texas Medical Center, of which th
Baylor University College of Medicine is a part.

The University of Vermont College of Medicine re
ports increased financing of its program through sta
sources. The curriculum of the second and fourth yea
has been drastically modified to allow correlation in th
second year of all courses with the course in patholo
and to allow extensive work in the outpatient departme
during the fourth year.

Queen's University Faculty of Medicine has separat
its department of eye, ear, nose, and throat into depa
ments of ophthalmology and otorhinolaryngology.

The University of Saskatchewan College of Medici
will initiate its first third year of instruction in the f
of 1955. The departments of medicine, surgery, pe
atrics, psychiatry, social medicine, and rehabilitati
will continue efforts to present integrated instruct
in lectures and correlation clinics. McGill Univers
Faculty of Medicine reports the appointment of a co
mittee to reevaluate its over-all curriculum and obj
tives and to recommend such modification as deem
desirable.

CONSTRUCTION OF FACILITIES

The annual reports from the medical schools to
Council indicate that during 1954-1955, 35 instituti
in the United States and 2 in Canada have either co
pleted or initiated construction and equipment of
facilities. Table 5 summarizes this information. C
pleted construction in medical schools in the Un
States totaled $99,384,986 of which $46,981,000
for basic medical sciences teaching and research, $4
957,000 for hospital and clinic developments,
$4,446,986 for dormitory facilities. Construction
tiated totaled $80,971,288, of which $60,330,02
for basic medical sciences teaching and research, $1
395,000 for hospital and clinic programs, and $1,2
259 for dormitory facilities. Two Canadian schools
port the initiation of construction estimated to
$2,100,000 for basic medical sciences, and one rep
$1,500,000 for initiated clinical laboratory facilities

The significance of these figures is definitely limit
They indicate that considerable sums are being
pended to improve and augment facilities for med
education. They do not, however, give a clear or co
prehensive picture of developments of hospital and cli
facilities that are utilized as part of medical educat
programs but financed by governmental or private fu
and not by the school. Such developments as the
Metropolitan, Jacobi, and Van Etten hospitals in N
York City, which will become the major basic clini
teaching units of the New York Medical College a
Albert Einstein Medical School in return for the p
fessional care responsibilities assumed by the medi
schools, represent tremendous investments of significan
to medical education although their chargeable value
it would be impossible to determine with any reasona
certainty. Grady Hospital in Atlanta, in which some
the clinical teaching of Emory University Medical Scho
is conducted, is another example among many whe
professional responsibilities for patient care are assum
by the school in return for the educational advantag
afforded by the hospital. The many examples of arrang

ments of this and similar types make it almost impossible to give an accurate picture of the investments in facilities and equipment that in some way have impact on opportunities in medical education.

REGIONAL PROGRAMS AND MEDICAL EDUCATION

Because of the relatively high cost of medical education, it is important that existing facilities in this field be used to their maximum potentialities and that their support be reasonably distributed. In the past some of the states unable to finance the development of higher education in its various branches lacked opportunities for some of their students. State-supported institutions have tended to restrict admission to outside students partially because of the fact that tuition represented such a small factor toward coverage of actual educational costs. During recent years the development of cooperation among groups of states through the mechanism of regional compacts in higher education has indicated one of the ways financing can be improved and costs more reasonably equalized per student among compact states. Both private and public institutions have been utilized in the interstate compacts to date, and it is important that both continue to participate in any future developments of this nature.

Because of the potential significance of broader opportunities in professional education and its improved financing through the medium of interstate cooperation, it is felt desirable to present a résumé of developments along these lines in the current report on medical education. The important implications of cooperative programs of this type transcend the field of undergraduate medical education and may in the future have increasing significance in continuing education through regional postgraduate medical education programs.

Several years ago 14 southern states approved a compact under which they obligated themselves to work with each other, with colleges and universities, and with agencies concerned with higher education to the end that through joint effort they might more rapidly advance knowledge and improve the social and economic level of their region. In the fall of 1948, a full-time staff was set up to survey the most urgent needs of the region in the field of professional and graduate education. Commissions were appointed on medical and related training (including medicine, dentistry, nursing, and pharmacy), veterinary medical training, and graduate studies, and careful evaluations were made by them.

The first regional activity which was undertaken by the Southern Regional Education Board (1949) was based on the exchange of funds between states desiring training for students in certain professional fields in which those states themselves did not provide student facilities and institutions which could provide them. To make this possible, contracts were established between the board and the states on one hand, and between the board and the institutions on the other. During 1951-1952 contracts in medicine, dentistry, veterinary medicine, and social work provided places for approximately 850 students. In 1952-1953, the program provided places for 1,059, and since that time it has continued to grow and to serve an effective role.

During 1954-1955, a total of 1,004 "regional students" were enrolled in 18 institutions under the Southern Regional Education Board. Their home states paid an aggregate of $1,314,715 to the institutions they attended. The third group of "regional students" have received their professional degrees in medicine (84), dentistry (69), veterinary medicine (96), and social work (16). With the graduation of this group, nearly 700 southern students have completed such professional training as a result of the Southern Regional Education Board contract arrangements.

The Southern Regional Education Compact and its bylaws indicate two general means by which the Regional Education Program may be developed. One of these is the joining of existing institutions and agencies in planning and executing regional programs in education; to date, this is the method that has been utilized. Secondly, provision is made for the establishment of new institutions to meet the region's needs, but only if existing institutions do not have adequate facilities and do not wish to create them.

In 1949, governors of 11 western states and 2 territories unanimously endorsed the principle of close interstate cooperation in higher education. The Western Governors' Conference concluded that not all states individually had sufficient numbers of potential students to warrant the establishment and maintenance af adequate facilities in all the essential fields of technical, professional, and graduate training; nor did all the states have the financial ability to furnish within their borders institutions capable of providing acceptable standards of training in all these fields. They did, however, express the conviction that some of the western states or groups of them could provide acceptable and efficient educational facilities to meet the needs of the region and its students. It is of interest to comment that, prior to the endorsement of the regional principle by the Western Governors' Conference, the University of Colorado School of Medicine had established a program whereby students from a neighboring state were accepted under provisions that the sender state transfer funds to cover basic educational cost above tuition. Even earlier the Medical College of Virginia and Meharry Medical College had developed programs involving interstate cooperation and financing.

By March of 1955, nine of the western states had ratified the Western Interstate Compact for Higher Education. An idea of the manner in which the program works can be presented by the example of the state of Washington, which was the ninth state whose legislature ratified the compact last March. Along with enabling legislation the state legislature passed an appropriation to share the costs of operating the Interstate Commission for Higher Education. About one-third of the students in Washington's professional school of veterinary medicine at the state college and from 10 to 15% of those in medicine and dentistry at the university have been coming from other states that are now members of this compact. Washington's membership now provides an opportunity for other compact states to send students to Washington's professional schools under the contract program. For each of these students in the program, Washington will be able to collect not only regular in-state tuition but also special fees (paid by the sending state) of $2,000 for medicine, $1,600 for dentistry and $1,200 for veterinary medicine. The legislation which was approved "cedes none of the rights of the institutions nor of the state." It is permissive only and permits arrangements by which states sending students tangibly help meet educational costs of their education in an institution supported by another compact state.

During recent years various groups in New England have discussed proposals for the establishment of some form of cooperative machinery for higher education. In May of 1953 the legislatures of Maine, New Hampshire, and Vermont authorized their state universities to act as agents for entering into contracts with institutions in or out of the state, private or public, to supply medical and dental education or any education not offered at the home state university. This enabling legislation was the first step toward greater regional cooperation in the New England area. There currently is considerable interest in a five or six state regional arrangement in New England. Whether in medicine this will be restricted to improve support for existing schools or ultimately bring about the establishment of a new school under the sponsorship of several states has not yet been determined.

TABLE 6.—*Estimated Sources of Basic Medical School Operating Budgets, 1955-1956*

No. of Schools	Source of Funds	Amount	Percentage of Total
48	Government (state, municipal, federal) appropriations	$47,727,835	48.7
47	Endowment income	10,358,181	10.6
81	Tuition income	19,210,304	19.2
34	General university funds	6,286,416	6.3
78	Gifts, grants, and other sources	14,429,885	15.2
	Total	$98,012,621	100.0

MEDICAL SCHOOL FINANCING AND ESTIMATED 1955-1956 BUDGETS

In keeping with the annual reports of the past several years, the Council on Medical Education and Hospitals has endeavored to present statistical information in regard to the financial support of undergraduate medical education and certain allied activities. The questionnaire on Medical School Statistics for 1954-1955 included an inquiry on projected budgetary information for 1955-1956. The following information was requested: (1) anticipated income and its source for general operating expenses of the medical school exclusive of income for hospitals, grants for research, and special projects, (2) anticipated income from outside agencies for research projects and teaching grants, (3) anticipated income available for hospitals or dispensaries owned by the medical school, and (4) a provisional breakdown of approximate allocations of the budget to administration, maintenance of buildings and grounds, equipment and supplies, salaries, research supported directly by the school, and other expenses.

As has been previously reported, there are many variables involved in medical school financing, and it is difficult to ascertain that all institutions have presented data so that it can be uniformly interpreted. The complex nature of teaching programs tied in with medical service activities, certain aspects of research, and educational services rendered to other schools or hospitals within the fabric of a university organization all make it exceedingly difficult for some institutions to evaluate all budget factors with certainty. True comparative analysis of medical school budgets is difficult because of the great variations in institutional organization and responsibilities. The accompanying data is restricted, therefore, to a presentation of general information in regard to current medical school financing based on material submitted to the Council in response to the present medical school questionnaire.

For purposes of this report the term "basic budget" is restricted to funds utilized for the operating activities of the school exclusive of appropriations for hospitals and clinic operation and maintenance or grants-in-aid for research or teaching from outside sources. Estimated 1955-1956 basic budgets for the 75 four year schools in the United States total $95,458,428 and for the 6 two year schools of basic medical science, $2,554,193. Thus, the total anticipated 1955-1956 basic budget for the 81 approved medical schools in the United States is $98,012,621. Forty-two of the four year and five of the two year schools receive governmental appropriations from state or municipal sources, and one four year school obtains federal funds for its basic budget. Such governmental appropriations account for $47,727,835 (48.7%) of the total projected 1955-1956 basic budget for medical education. Forty-six of the four year and one of the two year schools report $10,358,181 (10.6%) of the total basic budget as anticipated from income on endowment. Tuition charges in the 81 medical schools for 1955-1956 will approximate $19,210,304 (19.2%) of the total. Thirty-four schools indicate that $6,286,416 (6.3%) of the total basic budget will be derived from general university funds. The remaining $14,429,885 (15.2%) will be derived from gifts, grants, and other sources.

This analysis is presented in summary form in table 6. It is desirable to emphasize that this summarization constitutes a general picture of the source of total funds in each of the categories in relation to the total projected 1955-1956 basic medical school budget. The percentage allocations, therefore, should not be interpreted as the budget distribution of individual schools. For instance, 33 of the 81 schools receive no basic budget appropriations from governmental sources, 34 have no endowment income, and only 33 report allocations from general university funds. On the other hand, in some state institutions governmental appropriations constitute the major source of all basic budget funds, while in some private schools the largest single source of anticipated income is endowments. It is relatively easy to determine the total estimated income from tuition and the percentage of the anticipated basic budget which it represents for all institutions. However, the importance of the tuition income factor in the budgets of individual schools varies widely from less than 2% in one of the state-supported schools to over 84% in one of the private institutions.

The projected 1955-1956 basic budget represents an increase of $4,604,309 over the 1954-1955 anticipated budget presented in the last report. Since this 1955-1956 budget includes one new four year school budget and materially augmented budgets in two of the schools currently enlarging their programs from two to four year institutions, the actual over-all increase for the remaining 78 approved schools represents less than 2 million dollars. Thus, in interpreting data from year to year, it is necessary to know whether any increase over a previous year represents the same number of medical schools or whether it includes additional medical school budgets or augmented budgets of two year schools enlarging to four year programs.

There is a marked increase in anticipated estimates of support from research grants from outside agencies. The sum of $54,470,989 projected for 1955-1956 represents an increase of $9,087,115 over the amount anticipated from such sources in 1954-1955 Teaching grants from outside agencies to medical schools during 1955-1956 are estimated at $7,035,905, an increase of only $161,494 over the previous year. Thus, in funds obtained from sources for activities supported in addition to those covered by the basic medical school budgets, the most significant increase is that associated with the support of research activities.

It is of interest to note that 16 medical schools anticipate grants-in-aid for research and teaching from outside sources in excess of $1,000,000 and that 7 of these present estimates in excess of $2,000,000. Further analysis of data available reveals that 15 of the four year medical schools anticipate income from such grants for research and teaching from outside sources in excess of their basic total operating medical school budgets. Table 7 is a recapitulation of estimated funds available to medical schools in the United States for 1955-1956 for basic operating budgets and from grants from outside sources for research and teaching. In comparing this total of $159,519,515 with that of $148,645,201 for the 1954-1955 period, it should again be emphasized that the new total includes an additional four year school and two schools of basic medical sciences in transition to four year programs.

Costs in connection with the activities of basic medical education, like costs in other fields, have continued to increase. While some institutions have enjoyed modest augmentation of funds for basic operational costs, this has not been true of others which continue to encounter very difficult financing. Institutions where 50% or more of the basic operational budget is dependent upon tuition and fees face particularly difficult financial problems. Average tuition rates would seem to be at an almost maximum level consistent with the ability of medical students and their families to meet them and the other costs involved, such as board and room, laundry, transportation, and miscellaneous expenses.

The financing of research in association with medical school activities presents an interesting picture today. Medical schools furnish physical facilities and some equipment, as well as the time and effort of costly faculty personnel for research. However, data obtained from the annual questionnaire indicate that in budgeting, 23 of the medical schools have allocated a total of $1,563,184 to the direct support of research activities from the basic operating budget. This implies that well over 95% of the expenditures for the important research activities that are now being conducted in medical schools are met by the $54,470,989 obtained from grants for research from outside agencies. It should be reemphasized that medical schools basically support research to a larger degree than is represented by the direct allocation of $1,563,184, through the facilities and equipment they furnish, as well as the faculty personnel, time, and effort allocated to such activities. However, the available data clearly highlight the fact that the current research activity is almost totally dependent on outside sources for financial support, and that these sources have become an increasingly essential factor in the development and maintenance of medical research.

Because of its steadily increasing role and significance in the support of medical research and special teaching projects over the past decade, the United States Public Health Service was requested to prepare a summary of the educational values of its grant and award programs during this period. The tabulation and informative summary on the next page which was prepared by officials of the National Institutes of Health, will be of interest to all individuals and organizations concerned with medical education and research. It clearly illustrates that the partnership role of the Public Health Service in the promotion of medical education and medical research has been increasingly substantial in nature and is essential to the maintenance of the current high level of investigative activity as well as certain teaching activities of the medical schools.

TABLE 7.—*Estimated Funds Available to Medical Schools, 1955-1956*

(This does not include funds for construction, which are summarized in table 5, nor does it include operational costs of major clinical facilities.)

Category	Amount
Basic budgeted funds and appropriations (table 6)..	$ 98,012,621
Research grants from outside sources..................	54,470,989
Teaching grants from outside sources.................	7,035,905
Total	$159,519,515

EDUCATIONAL VALUES OF THE GRANT AND AWARD PROGRAMS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Unprecedented scientific achievement during World War II led to general appreciation of the benefits to be derived from intensive programs of medical research and education. Such programs to be of maximum value must seek new basic knowledge and apply it to the understanding of major health problems, notably those arising as infectious diseases decline and the life span lengthens. To help meet this need, Congress has increased its appropriation to the Public Health Service's research bureau, the National Institutes of Health, from $2,835,000 for 1945 to $97,573,000 for 1956. Approximately two-thirds of each year's appropriation is awarded to nonfederal institutions, agencies, and individuals, largely for the support of research projects and the development of scientific manpower.

The National Institutes of Health, located at Bethesda, Md., comprises seven institutes organized to support and conduct research on the major chronic and infectious diseases. The program areas include heart disease, cancer, mental disorders, neurological diseases and blindness, arthritis and metabolic diseases, dental diseases, and microbiological problems. Serving the various institutes is the Division of Research Grants and the Clinical Center, a 500-bed facility for clinical-laboratory research. Over the past decade, the National Institutes of Health has assumed an important place in the nation's medical science structure. The scope of its support is indicated by the tabulation below:

TABLE 7A.—*National Institutes of Health History of Appropriations for Grants and Awards Combined Programs, Fiscal Years 1945-1956*

Yr.	Training Awards	Research Fellowships	Research Grants
1945	$ 29,000	$ 28,000	$ 85,030
1946	25,000	44,600	780,158
1947	250,000	178,000	3,576,198
1948	2,809,700	520,000	9,145,000
1949	3,930,000	1,115,000	10,671,492
1950	6,415,060	1,448,057	13,065,514
1951	6,928,200	1,565,000	16,713,000
1952	7,392,000	1,755,000	18,173,000
1953	8,194,000	2,024,000	20,374,000
1954	10,813,000	2,133,000	28,866,000
1955	11,051,000	2,562,000	33,918,000
1956	14,502,000	2,800,000	38,038,000

Training Grants.—Research manpower bears a crucial relation to the nation's health, for the quality and volume of medical research is directly proportional to the caliber and number of workers devoted to the medical and biological sciences. Closely related to the growing problem of manpower shortage in these fields is the need for physicians with special competence in the treatment of major chronic diseases. National Institutes of Health grants for training and teaching provide direct aid to educational institutions. They help schools equip medical students and professionals in certain related areas with the latest medical knowledge. Although awarded for a one year period, the grants have been uniformly renewed upon request. They are available from the National Cancer Institute, National Heart Institute, National Institute of Mental Health, National Institute of Arthritis and Metabolic Diseases, and National Institute of Neurological Diseases and Blindness.

The first three of these institutes award grants for the support of training at undergraduate levels. The specific purpose is to establish, expand, improve, or continue instruction related to health problems within the institute's program. Applicants that have received grants to date include schools of medicine, dentistry, and public health. The present maximums for grants in this category range from $5,000 for teaching of cancer in dental schools to $25,000 for cancer or heart grants to four year medical colleges.

Graduate training grants are awarded through the National Heart Institute and the national institutes of arthritis and metabolic diseases, neurological diseases and blindness, and mental health. These awards have a two-fold purpose, to help the schools improve their instructional programs and to make funds available for trainees' stipends. In the case of the National Institute of Menta Health, grants are made to training institutions for: (1 instructional and other expenses of training, (2) aid t trainees in the payment of expenses, and (3) researc with a view to evaluating and developing instruction methods. The subjects covered are psychiatry, clinic psychology, psychiatric social work, psychiatric nursin and public health. Support may be requested for a ma imum of five years.

In the cancer field, where National Institutes of Heal training grants were first employed, some typical resul have been the acquisition and retention of superior i structors, improved teaching practices including wid use of visual aids, establishment of cytology and isoto laboratories, increased awareness of cancer on the p of both faculty and students, and more thorough utiliz tion of available knowledge. Every medical school in t country is participating. Cancer coordinators, designat by the schools, have been an important factor in ganizing and rounding out the teaching programs.

Traineeships.—In addition to the trainee stipen awarded locally out of training grants, the Public Hea Service offers direct traineeships through the Natio Cancer Institute, National Heart Institute, National stitute of Arthritis and Metabolic Diseases, and Natio Institute of Neurological Diseases and Blindness. Th awards are intended to increase the number of physici and allied workers engaged in specialized clinical tivities. They are of two types: regular traineeships qualified citizens with an appropriate doctoral deg ($3,400 the first year and $3,700 the second year, p $350 per dependent child and spouse), and spec traineeships (in varying amounts) to citizens with u usual competence or in need of specialized training fo specific problem. They are generally made for one ye but may be renewed and permit the trainee to study the institution of his choice.

Research Fellowships.—The research fellowships p gram of the National Institutes of Health provides fina cial assistance to promising American scientists duri their training period, so that they can pursue careers medical research and allied fields. These fellowships a awarded on a competitive basis upon the recommend tion of scientific committees. A research fellow may co duct his work at any institution where interest, guidanc and facilities are suitable. Nine out of 10 fellowship cipients remain in medical research after their training

Four classes of research fellowship are available: (1 predoctoral, (2) postdoctoral, (3) special, and (4) th medical and dental student part-time research fellowsh grant. Predoctoral research fellowships are awarded qualified persons with a bachelor's degree intending prepare for graduate training in a health science. Annu stipends range from $1,400 to $1,800, plus $350 per de pendent child and spouse. Postdoctoral research fellow ships require an M.D., Ph.D., D.D.S., or equivale degree. The stipend is $3,400 the first year and $3,70 the second, plus $350 per dependent. Special researc fellowships require unusual competence for research o specialized training, as well as a doctor's degree in medicine, dentistry, or related fields, and the stipend is determined at the time of award. Fellowships of the fourth-listed class are awarded to acceptable medical or dental schools in units of $400 each. Medical schools may request up to four units and dental schools up to two, plus an additional 8% allowance for indirect costs. The award may cover part-time activities of a selected student during the school year or full-time activities during the summer vacation. (Other fellowship allowances include the $500 supply grant to an institution sponsoring postdoctoral or special fellows, tuition provided as part of a fellowship award, and expenses for certain travel.)

Research Grants.—The most extensive National Institutes of Health program in terms of expenditure, the research grants program, has been not only a forceful stimulus and aid to medical research, but has also contributed significantly to the education of junior participants in the grant projects. Tremendous expansion of the program has been accompanied by increased research support from various sources and by dispersion of research throughout the country's medical schools, universities, and hospitals. This year, support is being given to 372 research institutions in 47 states, the District of Columbia, 2 territories, and 9 foreign countries.

All seven institutes award grants to support research projects within their particular fields, and the Division of Research Grants is responsible for grants not encompassed by any institute's program. During the fiscal year 1955, 3,261 research grants were awarded. (These support 731 projects in heart research, 720 in cancer, 432 in arthritis and metabolic diseases, 400 in neurology, 236 in microbiology, 223 in mental health, 49 in dental, and 470 in subjects outside these areas.) In addition, cancer field investigation grants totaled 86. Because of the acute shortage of research personnel in psychiatry, career investigator grants were recently established by the National Institute of Mental Health. These are special research grants to assist in opening research careers to qualified young psychiatrists and scientists in related disciplines by providing three to five year support for full-time research at the recipient institution.

Primarily, the purpose of the research grants program is to expand research in medical schools, hospitals, and other nonprofit institutions, and to stimulate new investigation in neglected fields. Research grant applications are reviewed by panels composed largely of nonfederal scientific specialists, and the awards are made only upon the recommendation of appropriate national advisory councils. The several councils are composed of nonfederal leaders in science, education, and public affairs. (Further information and application forms may be obtained from the national institute concerned. For research fellowship applications, write to the Division of Research Grants, National Institutes of Health, Bethesda 14, Md.

Visiting Scientist Program.—The purpose and spirit of the visiting scientist program is to increase the utility of the National Institutes of Health as a national research resource and to strengthen interrelations with the broader scientific community. Two levels of appointment have been established: (1) visiting scientist and (2) research associate in the visiting scientist program. Both awards require a doctoral degree or equivalent training and experience. In addition, the visiting scientist must have outstanding ability and at least six years' postgraduate experience in research. The caliber of both recipients must be such that their work at the National Institutes of Health would be mutually beneficial to themselves and the staff.

Conferences and Symposiums.—In addition to the obvious educational components of the grants and training awards, these programs afford educational opportunities through the full or partial support of congresses, seminars, and symposiums related to the field under scrutiny. For example, the Heart Institute aided in the Second World Congress of Cardiology, which assembled the current cardiovascular knowledge of 50 nations. The Institute of Neurological Diseases and Blindness participated in a special conference of the American League Against Epilepsy, which recommended changes in state laws affecting 1,500,000 epileptics. Among the conferences sponsored or cosponsored by the National Cancer Institute have been the National Cancer Conference, the Sixth National Gastrointestinal Cancer Conference, and the Annual Cancer Coordinator's Conference. The National Institute of Mental Health supports meetings to exchange information on particular mental health subjects, to provide orientation and training in specific services, and to review and develop curriculums, functions, and standards for various professions. As part of its continuing educational program, the National Institutes of Health provides personnel and exhibits for medical and scientific meetings of state, regional, and national scope.

Increasingly, National Institutes of Health clinical conferences, lectures, and seminars are attracting the active participation of physicians from private practice, faculty members of universities and medical schools, and staffs of other service hospitals and research centers. As a net result, the National Institutes of Health participates in the educational contribution of institutions of higher learning in the biomedical sciences.

MEDICAL SCHOOL FACULTIES

For the past several years the Council has presented a résumé of data in regard to currently unfilled teaching positions in medical schools in the United States. Table 8 summarizes the information submitted by schools as projected for 1955-1956. In the basic medical sciences fields the medical schools report 32 new and 76 old, or a total of 108, authorized and budgeted positions currently unfilled in their faculties. Clinical departments report 82 new and 61 old, a total of 143 unfilled positions. Distribution according to rank reveals that 53 of the vacancies are professorships, 52 associate professorships, 79 assistant professorships, 60 instructorships and 7 assistants or associate positions. The total number of vacancies reported is seven less than the number recorded for 1954-1955. In view of the newly developing programs and new faculty appointments that have been made during the past year, this slight improvement in unfilled posts is perhaps more significant than it appears on the surface. However, as the new school programs undergo further development, the need for faculty personnel will continue to increase. Recruitment of highly qualified medical faculty full-time personnel promises to continue as a challenge to medical education.

Because of increasing interest in the problems associated with the financing of clinical faculty personnel, last year's annual report included for the first time an analysis of the status of faculty personnel in clinical departments. In recent years there has been considerable misunderstanding on the part of many individuals as to the implication of the term "geographical full-time" in connection with clinical faculty appointments. As ordinarily utilized it implies that the individual faculty member conducts all of his activities in the "geographical" environment of the medical school. The institution usually pays a basic salary to the faculty member in this category, and he is permitted to have additional income from consultations or from private practice conducted in addition to his teaching, administrative, and research responsibilities. Because of the costliness of financing absolute full-time clinical personnel receiving salaries with no other income from professional activities and the accompanying limitations, relatively few institutions have found it possible to maintain adequate clinical faculty personnel without the utilization of some form of "geographical" arrangements.

TABLE 8.—*Number of New and Old Authorized and Budgeted Full-Time Positions by Departments in the Medical and Basic Sciences Schools of the United States, 1955-1956*

	New	Old	Total
Basic Sciences Departments			
Anatomy	3	15	18
Biochemistry	2	6	8
Microbiology	8	7	15
Pathology	9	24	33
Pharmacology	4	15	19
Physiology	6	9	15
Totals	32	76	108
Clinical Departments			
Anesthesiology	5	5	10
Dermatology	1	..	1
Internal Medicine	15	13	28
Neurology	1	1	2
Neurology and Psychiatry	10	11	21
Obstetrics and Gynecology	9	7	16
Ophthalmology	1	1	2
Otolaryngology	..	2	2
Pediatrics	8	4	12
Physical Medicine	2	2	4
Preventive Medicine	11	3	14
Radiology	6	2	8
Surgery	12	10	22
Urology	1	..	1
Totals	82	61	143
Analysis of Faculty Rank of Vacancies			
Basic Science Departments			
Full professors	3	11	14
Associate professors	7	13	20
Assistant professors	12	22	34
Instructors	10	26	36
Associates	..	1	1
Assistant instructors	..	3	3
Totals	32	76	108
Clinical Departments			
Full professors	18	21	39
Associate professors	20	12	32
Assistant professors	29	16	45
Instructors	12	12	24
Assistants	2	..	2
Associates	1	..	1
Totals	82	61	143
Grand totals	114	137	251

On the basis of information currently available, it would appear that the manner in which clinical faculty personnel are employed must depend upon the peculiar needs of each individual school. Problems of medical school financing reveal that there is no single answer suitable or applicable to all institutions and that arrangements must be made at the local level that serve the best interests of the school and maintain its relations with the local medical profession, from which the average institution must derive much of its clinical instruction. Conscientious study, thorough understanding, and satisfactory communication between medical schools and medical professional organizations in any given locale should make it possible to develop plans for the employment of clinical faculty personnel as nearly mutually satisfactory to all concerned as possible.

It is important, however, to note in passing that problems centered around this area of medical school functions have in some instances led to serious misunderstanding and difficulties between professional and school groups. It has resulted in the introduction of a resolution to the House of Delegates of the American Medical Association in 1954 on the part of one state medical association directed against "the practice of medicine" by personnel of tax-supported medical schools and requesting the establishment of a definite over-all policy covering employment of medical faculty members in such institutions.

Subsequently the Council on Medical Service of the American Medical Association was asked to conduct an inquiry into the practices of medical schools in the employment of clinical faculty personnel. In conference with representatives of the Council on Medical Education and Hospitals, the Association of American Medical Colleges, and the American Hospital Association, a questionnaire was designed to obtain comprehensive information from the medical schools. The Council on Medical Service has also designed a questionnaire for the medical societies in locations where medical schools exist. The results of these questionnaires are being analyzed, and a report of the findings will be made in the near future. It is to be hoped that this information will be of great value in clarifying some of the areas of misunderstanding and allaying some of the misapprehensions that have appeared with increasing frequency in recent years.

It is not easy to develop and retain high caliber medical faculty personnel in either basic medical science or clinical areas. It is important that members of the medical profession in the locale of a medical school fully understand and appreciate the problems of the school and that the school in turn have full knowledge and appreciation of the problems of the profession. Only through mutual confidence in the integrity of each, through established and satisfactory mechanisms for review of misunderstandings and difficulties, and through concerted effort to adjust them satisfactorily can these problems be minimized or eliminated.

CURRICULUM STUDIES

Legal Medicine, Medical Ethics, Economic Aspects of Medicine, Medical Public Relations, and Medical History.—In each annual report on medical education in the United States and Canada, it is planned to present information on certain facets of the medical school curriculum content. The questionnaire this year included an inquiry on the number of hours specifically allocated to, and departments responsible for, instruction in legal medicine, medical ethics, economic aspects of medicine, medical public relations, and medical history. If no specific allocations of time for instruction in any of these areas were included in the curriculum, a request was made as to what method was utilized to develop background knowledge of their importance in medicine today.

Information from the medical schools indicates that 70 of the 81 institutions in the United States allocate definite time to the teaching of legal medicine. This varies from a minimum of one hour to a maximum of 42 hours. Forty-five of the schools allocate over 10 hours and six of this group assign over 20 hours in this field. The average allocation is 12.5 hours for the 70 schools offering specifically assigned teaching time. With the exception of 3 two year schools of basic medical science and 1 four year institution, the remaining group of 11 medical schools indicate that instruction in this field is incorporated in one way or another with other phases of medical education. There is no uniform pattern of handling instruction in legal medicine. Institutions report that this subject matter is taught by departments of legal and/or forensic medicine, preventive medicine, public health, medicine, pathology, pharmacology, neurology, the medical school administration, school of law, a university institute of government, and by special lecturers.

All but six of the four year schools and three of the schools of basic medical science indicate that instruction is given in some form in the field of medical ethics. Only 40 of the 81 schools, however, indicate specific allocations of time, which vary in amount from 2 to 64 hours. Where it is allocated specific time in the curriculum, it is given as medical ethics, cultural medicine, medical law and ethics, public relations, philosophy of medicine, or social and environmental medicine. It is presented by the dean or other administrative officers, by departments of medicine, public health, preventive medicine, cooperatively by several departments, or by medical societies. Those institutions where specific time is not allocated but where some attention is given to student indoctrination indicate that a number of different methods are used. For instance, the faculty of one institution believes medical ethics and medical public relations are aspects of medical knowledge best gained through observation and discussions with small groups of students in class, on the wards, and in clinics. Another indicates that medical ethics, economics, and public relations are integrated with clinical teaching and are conveyed principally by precept. A third accomplishes its purpose through specifically assigned correlation conferences and through creating awareness of the need by day to day teaching within other established courses. In some schools awareness of the importance of the field of ethics is introduced early in the first year through orientation lectures and conferences. In at least three medical schools the local or state medical societies are cooperating in the conduct of lectures and discussions in the fields of medical ethics and medical public relations.

There are nine four-year schools and four schools of basic medical science which report no time allocation for, or specific instruction in, the economic aspects of medicine. All the other institutions indicate that this field receives coverage in connection with such courses as public health, preventive medicine, medical ethics, social and environmental medicine, and legal and economic medicine, through lectures, conferences, and discussions by the dean, or by cooperation with local or state medical societies. Specific allocation of time in 33 schools indicates that consideration of the economic aspects of medicine is assigned from a minimum of one to a maximum of 24 hours.

Twenty-one of the 81 approved medical schools in the United States specifically allocate from one to 11 hours to consideration of medical public relations. Twenty-three of the schools allocate no specific time, nor do they indicate the incorporation of instruction in this field in connection with other courses. All the remaining institutions indicate that some emphasis is given to medical public relations in connection with instruction in one or more departments.

Most reports emphasize the importance of constant presentation of ethics, economics, and public relations as an integral part of all phases of undergraduate medical education in the precept and example of teachers and members of the profession with whom students have contact.

Seventy-one of the medical schools offer either required or elective work in the field of medical history. Time allocations vary from 2 to 50 hours. These courses are conducted by departments of medical history, cultural medicine, medicine, surgery, anatomy, public health, pathology, physiology, preventive medicine, and social and environmental medicine and in orientation courses. In a number of institutions, medical history is an interdepartmental offering, and in two schools the course is conducted by the American College of Physicians. In a few schools efforts are made to highlight important historical events in connection with individual departmental teaching. Ten of the schools report no time allocation for either required or elective work in medical history or any indication of its conscious integration into other courses.

NATIONAL FUND FOR MEDICAL EDUCATION AND AMERICAN MEDICAL EDUCATION FOUNDATION

The 1954 annual report of the National Fund for Medical Education indicates that business, industry, and other segments of society, together with physicians who gave funds through the American Medical Education Foundation, contributed a total of $2,693,170. Grants totaling $2,176,905 were made in July, 1954, to the 80 medical schools approved at the time, which brought the total distribution to approximately $7,000,000 since the initial grants were made in 1951.

During 1954, Public Law 685 granting a federal charter to the National Fund for Medical Education was enacted by Congress. This was recognition by Congress that medical education is of vital national concern and that the fund's role in mobilizing voluntary support for the strengthening of our medical schools is deserving of broad national backing.

The 1954 Annual Report of the American Medical Education Foundation indicates that $3,563,881 of the total funds disbursed to medical schools from 1951 to 1954 were obtained from this source. During the period

1951-1954, the American Medical Association contributed $500,000 annually for a total of $2,000,000. Physicians voluntarily contributed an additional $1,357,638, medical societies and associations $553,662, and others $7,682. At the time the American Medical Education Foundation was instituted, it was understood that, as individual physician contributions increased in number, the American Medical Association would reduce its annual direct contribution. The Board of Trustees of the American Medical Association has reduced its direct contribution to $100,000 this year, while continuing to underwrite the costs of the American Medical Education Foundation program. It is to be hoped that both the American Medical Education Foundation and the National Fund for Medical Education will rapidly gain both in number of contributors and in total contributions.

PRECEPTORSHIPS

Data about preceptorships were supplied for 1954-1955 by the schools as to: (1) whether or not they were included in the curriculum, (2) year established, (3) whether or not preceptors were general practitioners, specialists, or both, (4) whether they were required or elective, (5) their duration, and (6) the number of students participating. In addition, institutions indicated the preceptorship's objectives and means utilized to determine whether the stated objectives were being fulfilled.

TABLE 9.—*Preceptorship Programs, 1954-1955*

Institutions	Yr. Established
University of Arkansas	1952
College of Medical Evangelists	1952
University of California	1952
Stritch School of Medicine	1951
Indiana University	1953
State University of Iowa	1953
University of Kansas	1950
University of Louisville	1952
Boston University	1948
University of Nebraska	1951
Albany Medical College	1952
University of Buffalo	1950
Duke University	1938
Western Reserve University	1952
University of Oklahoma	1949
University of Oregon	1952
Hahnemann Medical College	1953
Temple University	1954
University of Pennsylvania	1950
University of South Dakota	1947
University of Texas	1952
University of Vermont	1929
University of Washington	1949
University of Wisconsin	1926

In 1954-1955, a total of 24 schools offered preceptorships, compared to 22 in 1953-1954. Emory University discontinued its program, Stritch reinstated its preceptorship, Temple established its program, and Western Reserve continued a program established in 1952 that had not been previously reported. Table 9 lists the institutions offering preceptorships in 1954-1955 and the years in which the programs were established. In 15 of the programs, preceptors are general practitioners, and in 6 they are reported to be specialists, while both participate in the remainder of the programs. Preceptorships are offered in the fourth year in 18 schools, in the third year in 3, in the third or fourth year in 1, in the second year in 1, and in all four years in 1 institution. They are required in 10 and elective in 14 schools. Length of preceptorships varies from two weeks to four and one-half months. In 1954-1955, 1,433 students participated in preceptorship programs.

The statements submitted in regard to the objectives sought in the preceptorship program, although varied in their mode of presentation, indicated, in general, a desire *to offer students an opportunity* to observe closely medical practice as *it* is actually carried out. The program *is believed to afford the students* an opportunity to investigate certain types of practice in which they ma desire a career, as well as to provide an opportunit to appreciate the scientific, social, economic, and environmental factors in the practice of medicine. On institution expressed its desire to teach the student "medical way of life," and another tersely indicated i objectives to be identical with those of its over-a undergraduate programs of offering the best possib basic educational experience for its students.

The various methods utilized to evaluate precepto ships include reports from preceptors and precepte and routine evaluations by deans or committees. Oth institutions have utilized polls of students, precepto *and former students who have taken preceptorships.* O *institution utilizes questionnaires and conferences* wi students, an annual conference with preceptors, a adequate liaison between the school administration a preceptors through visits to the preceptors.

The impression is received that preceptorships ha been considered as valuable experiences when the pr grams were well planned and preceptors were carefu selected and thoroughly cognizant of the objectives the program, as well as interested in it. One instituti indicated that students did not seem to be interested or satisfied with the program and that doctors did n understand the functions of a preceptorship. As was i *dicated in connection with the editorial discussions* *family care programs last year,* preceptorship opportu ities can be only as good as the planning, personnel, a supervision, and such programs deserve the over- study and implementation which will make it possib to realize their maximum potentialities as part of undergraduate medical educational experience.

TEACHING RESPONSIBILITIES FOR OTHER THAN UNDERGRADUATE MEDICAL STUDENTS

1954-1955

In addition to their responsibilities in undergradua medical education, all the medical schools in the Unit States and all but one in Canada instruct students other classifications. The number of individuals oth than undergraduate medical students *who receive* all part of their instruction from medical *faculties* continu *in 1954-1955 to be twice as great as the total* number undergraduate medical students. For 1954-1955 t medical schools in the United States reported 57,27 students other than undergraduate medical students, an Canadian schools reported 6,211 such students. Th represented a decline of 2,107 in the United State schools and an increase of 930 in the Canadian school Table 10 analyzes the number and *distribution* of stu dents other than undergraduate medical registrants fo whom *medical schools have teaching* responsibilities.

TABLE 10.—*Teaching Responsibilities for Other Than Undergraduate Medical Students, 1954-1955*

UNITED STATES School	Dental Students	Pharmacy Students	Nursing Students	Student Technicians	Arts and Science Students	Interns	Residents	Physicians with Fellowship Appointments	Physicians Seeking Advanced Degrees		Other Graduate Students in Basic Medical Sciences		Physicians in Continuation Courses	Totals
									M.S. Degree	Ph.D. Degree	M.S. Degree	Ph.D Degree		
Medical College of Alabama	100	0	119	49	0	16	76	15	0	0	13	8	19	415
University of Arkansas	0	0	0	24	0	18	37	0	0	0	9	1	0	89
College of Medical Evangelists	91	0	165	35	0	23	40	6	3	0	7	0	160	530
Stanford University	0	0	131	10	0	0	0	0	0	2	10	20	210	383
University of California, San Francisco	283	266	150	54	0	58	166	4	0	0	10	19	533	1,543
University of California, Los Angeles	0	0	230	0	0	0	15	1	0	0	1	3	883	1,133
University of Southern California	0	0	0	0	0	0	0	0	0	0	23	40	773	836
University of Colorado	0	0	158	40	0	48	215	0	0	0	0	0	1,121	1,582
Yale University	0	0	130	0	0	46	75	77	0	0	51	29	345	753
George Washington University	0	30	0	6	158	22	40	16	0	0	61	57	211	601
Georgetown University	188	0	183	0	0	11	80	13	19	3	1	10	0	508
Howard University	144	61	12	20	30	3	42	4	0	0	0	0	0	316
Emory University	207	0	85	0	8	62	139	26	0	0	1	8	119	655
Medical College of Georgia	0	0	112	2	4	15	49	0	0	0	1	0	0	183
Chicago Medical School	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Northwestern University	0	0	377	38	10	0	0	0	13	12	26	13	77	566
Stritch School of Medicine	0	0	0	0	0	0	19	0	1	1	23	20	0	64
University of Chicago	2	0	165	0	0	36	119	36	0	9	27	78	0	472
University of Illinois	199	153	18	0	22	22	114	14	9	1	57	9	47	665
Indiana University	125	0	531	15	692	28	139	5	0	0	4	5	471	2,015
State University of Iowa	55	50	179	22	575	20	140	10	0	4	10	5	313	1,383
University of Kansas	0	27	160	115	347	20	105	4	2	0	9	7	2,034	2,830
University of Louisville	230	0	172	12	6	29	83	5	0	0	30	0	0	567
Louisiana State University	0	0	32	0	0	0	0	0	0	0	3	6	0	41
Tulane University	0	0	150	0	20	86	93	19	2	0	9	17	206	602
Johns Hopkins University	0	0	0	0	0	0	0	20	0	0	0	6	66	92
University of Maryland	0	43	28	9	0	22	53	19	0	0	5	7	71	257
Boston University	0	0	65	13	24	0	7	0	0	0	21	13	0	143
Harvard Medical School	28	0	0	0	0	0	0	0	0	0	1	60	489	578
Tufts College Medical School	277	0	0	0	0	0	0	0	0	0	9	7	72	365
University of Michigan	233	92	476	64	255	51	190	0	0	0	0	0	638	1,999
Wayne University	0	0	0	15	0	0	65	0	65	11	35	11	205	407
University of Minnesota	260	81	215	0	1,121	0	0	0	502	113	43	109	1,297	3,741
University of Mississippi	0	45	23	0	0	0	0	0	1	0	2	0	0	71
St. Louis University	157	0	189	69	0	14	38	0	5	0	9	19	0	500
University of Missouri	0	0	30	0	803	0	0	0	0	0	9	5	0	847
Washington University	0	0	0	94	0	57	131	67	0	0	27	1	6	383
Creighton University	91	0	122	0	5	0	0	0	17	0	6	0	118	359
University of Nebraska	0	0	111	23	0	11	35	2	0	0	18	2	0	202
Dartmouth Medical School	0	0	129	20	0	14	53	3	0	0	0	0	0	219
Albany Medical College	0	0	125	0	0	41	50	0	0	0	8	1	642	867
University of Buffalo	125	65	38	0	0	0	0	2	0	1	2	0	339	572
Columbia University	225	0	457	0	0	0	0	0	0	0	0	0	550	1,232
Cornell University	0	0	74	0	0	33	151	11	0	0	1	1	152	423
New York Medical College	0	0	193	0	0	0	20	0	5	0	0	0	62	280
New York University	0	0	542	0	146	0	0	46	0	0	9	18	0	761
State University of New York, New York City	0	0	0	0	0	61	198	10	0	0	0	0	0	269
State University of New York, Syracuse	0	0	213	0	0	26	80	6	0	0	0	15	165	505
University of Rochester	0	0	263	22	120	54	94	25	6	2	51	62	0	699
Duke University	0	0	229	12	0	59	155	22	0	0	16	10	16	519
University of North Carolina	211	142	140	10	20	26	55	11	0	0	59*	12	470	1,156
Bowman Gray School of Medicine	0	0	165	23	0	9	65	2	0	0	1	0	0	265
University of North Dakota	0	0	186	27	63	0	0	0	0	0	3	2	0	281
Ohio State University	588	16	420	35	1,001	0	0	0	0	0	53	28	0	2,141
University of Cincinnati	0	0	0	0	0	52	148	40	0	13	0	4	902	1,159
Western Reserve University	117	0	165	17	0	0	0	0	0	0	19	19	117	454
University of Oklahoma	0	0	120	36	0	17	65	2	3	0	15	21	0	279
University of Oregon	0	0	386	23	0	19	64	1	1	0	11	0	550	1,055
Hahnemann Medical College	0	0	116	26	0	0	0	0	0	0	11	2	67	222
Jefferson Medical College	0	0	0	0	0	25	80	10	0	0	4	15	1,355	1,489
Temple University	0	0	168	22	0	18	0	0	83	4	0	1	34	330
University of Pennsylvania	136	0	0	0	0	32	190	0	0	0	11	55	0	424
University of Pittsburgh	0	0	750	0	0	9	178	0	0	0	7	12	201	1,157
Woman's Medical College of Pennsylvania	0	0	60	0	0	5	16	6	0	0	0	0	0	87
Medical College of South Carolina	0	73	147	7	0	6	46	0	0	0	7	5	84	375
University of South Dakota	0	0	10	5	140	0	0	0	0	0	7	0	2	164
Meharry Medical College	122	0	42	38	0	13	23	1	0	0	2	0	0	241
University of Tennessee	284	195	215	43	0	0	0	0	23	0	33	0	116	909
Vanderbilt University	0	0	0	0	0	31	70	2	0	0	2	11	0	116
Baylor University	0	0	0	0	0	41	127	6	3	0	13	9	0	199
Southwestern Medical College	0	0	73	0	5	97	196	0	0	1	6	1	1,139	1,518
University of Texas	0	0	250	43	6	20	127	6	0	0	11	12	0	475
University of Utah	0	33	27	7	253	29	72	23	1	4	11	17	0	477
University of Vermont	0	0	32	30	4	21	26	32	0	0	0	0	170	315
Medical College of Virginia	207	227	246	64	61	45	105	1	1	0	3	7	0	967
University of Virginia	0	0	262	6	0	24	79	22	0	0	0	2	177	572
University	286	35	156	38	2,000	60	100	18	0	1	10	41	535	3,280
West Virgi	0	37	0	25	12	0	0	0	0	0	5	0	0	79
Marquette	331	0	0	83	0	30	110	0	6	0	37	0	58	655
University of Wisconsin	0	52	224	327	191	17	70	1	0	0	4	5	129	1,020
University of Puerto Rico	0	0	17	15	2	0	0	1	1	0	21	0	0	57
Totals	5,269	1,726	11,218	1,733	8,104	1,652	5,118	673	772	182	1,024	983	18,819	57,273

CANADA School														
University of Alberta	0	0	0	0	0	0	0	0	2	0	3	1	183	189
University	0	0	0	0	0	64	81	7	0	0	0	1	0	153
University	0	0	300	10	0	100	6	12	2	0	0	1	0	431
	35	26	33	16	37	0	11	0	0	0	8	0	1,811	1,977
	0	0	179	5	105	0	0	0	5	1	2	6	0	303
	0	0	17	0	0	46	0	3	0	0	6	2	25	99
	362	48	29	0	644	153	31	84	1	7	12	32	250	1,653
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
McGill	0	0	0	66	0	135	0	0	2	0	0	5	23	231
	74	0	0	0	0	0	0	0	0	0	0	0	0	74
	93	156	0	55	68	99	0	0	4	2	2	6	20	505
	0	91	349	19	118	0	8	2	1	0	5	3	0	596
Totals	564	321	907	171	972	597	137	108	17	10	38	57	2,312	6,211

* Some of these may also be candidates for Ph.D. degrees.

The greatest increases in 1954-1955 in the United States schools were in connection with continuation courses for physicians in which 3,504 more were enrolled than in the previous year and an increase of 575 dental students over those registered 1953-1954. There were decreases in arts and science students (2,580), nursing students (465) and student technicians (231). Graduate students working towards advanced degrees in basic medical sciences and clinical areas constitute an important and challenging aspect of medical school responsibility. This phase of medical school activity is discussed more fully in the section of this report dealing with graduate medical education.

As was suggested in the last Education Number of The Journal, the teaching responsibilities of medical schools for other than undergraduate medical students carry significant budget and personnel implications that necessitate full interpretation by responsible administrators. Interpretation of the true cost of medical education necessitates the evaluation of these other teaching activities and their deduction from over-all budgets where they are included in medical school accounting. The assumption of any teaching responsibility implies the need for adequate personnel, so that the teaching and research activities of a department are not diluted to the point where undergraduate medical students, other students, or both may have less effective opportunities than might otherwise be the case.

Table 11.—*Schools, Students, and Graduates in the Medical and Basic Sciences Schools in the United States, 1931-1955*

(Students in required intern year are not included.)

Year	Schools	First Yr.	Second Yr.	Third Yr.	Fourth Yr.	Total	Graduates
1930-1931	76	6,456	5,538	5,080	4,908	21,982	4,735
1931-1932	76	6,260	5,462	4,932	4,885	22,135	4,936
1932-1933	77	6,426	5,479	5,017	4,918	22,466	4,895
1933-1934	77	6,457	5,571	4,988	4,937	22,799	5,035
1934-1935	77	6,356	5,612	5,142	4,995	22,888	5,101
1935-1936	77	6,605	5,458	5,230	5,020	22,564	5,183
1936-1937	77	5,910	5,269	5,140	5,158	22,095	5,377
1937-1938	77	5,791	5,225	4,986	5,036	21,587	5,194
1938-1939	77	5,764	5,160	4,917	4,921	21,302	5,089
1939-1940	77	5,794	5,177	4,921	4,894	21,271	5,097
1940-1941	77	5,837	5,254	4,969	4,819	21,379	5,275
1941-1942	77	6,218	5,406	5,087	4,942	22,031	5,163
1942-1943	76	6,425	5,828	5,278	5,100	22,631	5,223
1943-1944	77	6,561	6,071	5,640	5,257	23,529	5,134
1944 (2nd session)	77	6,648	6,140	6,084	5,794	24,666	5,169
1944-1945	77	6,523	5,979	5,700	5,826	24,028	5,136
1945-1946	77	6,060	5,750	5,751	5,655	23,216	5,826
1946-1947	77	6,564	5,575	5,767	5,994	23,900	6,389
1947-1948	77	6,487	5,758	5,154	5,340	22,739	5,543
1948-1949	78	6,688	6,194	5,702	5,086	23,670	5,094
1949-1950	79	7,042	6,344	6,079	5,638	25,103	5,553
1950-1951	79	7,177	6,690	6,263	6,056	26,186	6,135
1951-1952	79	7,436	6,664	6,577	6,195	27,076	6,080
1952-1953	79	7,425	7,063	6,725	6,475	27,688	6,668
1953-1954	80	7,449	7,068	6,983	6,727	28,227	6,861
1954-1955	81	7,576	7,104	6,957	6,946	28,583	6,977

Too frequently when a medical school renders service functions to large numbers of students in other areas, either no adjustment or a nominal financial adjustment is made, ostensibly to pay for such services. Frequently such reimbursements fall far short of the actual cost of the services rendered and leave the medical school underwriting the difference, with this additional load interpreted by the uninformed as part of the cost of medical education. This problem appears to fall in the area of budget and accounting practices of medical schools and universities. The true cost of educating undergraduate medical students in a complex university setting or wherever others are also taught by the school can be determined only by utilizing effective budget and accounting methods.

The question as to whether teaching responsibilities for other than undergraduate medical students may unduly dilute either teaching or research, or both, is a matter of local institutional policy. If a medical school administration is fully aware of the implication of additional teaching services from the standpoint of budget, personnel, and facilities and such needs are satisfied, there is no logical reason why either teaching or research in medicine should be diluted in any sense. In fact, with adequate budgets, personnel, and facilities, departments of basic medical sciences carrying such responsibilities may possess even greater potential in both teaching and research than would be the case if their activities were restricted solely to undergraduate medical students and to graduate students in their specific fields.

Medical Students

ENROLLMENTS

For the sixth consecutive year, the number of students enrolled in approved medical schools in the United States has established a new record. Complete enrollment data for the individual schools are shown in table 1 and comparative data for this and preceding years are given in table 11.

It should be noted that the figure in table 1 depicting total enrollment for this past year includes 142 special or part-time students, whereas in previous years only full-time students were shown. However, even when this type of student is deleted from the current data, there remains an increase of slightly less than 1%. Approximately two-thirds of the increase is accounted for by the addition of information on the University of California School of Medicine at Los Angeles, which this year had all four classes in attendance and gained approval by the Council on Medical Education and Hospitals.

The entering class was the largest ever enrolled in our schools, and only half the increase over last year is accounted for by the addition of the class at the University of California School of Medicine at Los Angeles. The most significant changes in size of the entering class occurred at the Medical College of Georgia with an increase from 79 to 101 and the University of Maryland with a decrease from 104 to 88 first year students.

The University of Miami School of Medicine in 1954-1955 had the first three classes in attendance, and it is anticipated that this school will be eligible for approval during the 1955-1956 academic year, thus promising new enrollment records again for next year.

Five schools had a total enrollment greater than 600 students. The University of Tennessee College of Medicine led in this respect with a total enrollment of 804. The University of Tennessee and the University of Michigan admitted more than 200 students to their entering classes (221 and 205 respectively). There were six additional schools with first year enrollments of 150 or more students.

The median first year class for the four year schools was composed of 87 students, and the average had 98 students. The median total enrollment was 338 and the average 375 students. The schools of basic medical sciences had an average entering class of 39.

Enrollment data for approved Canadian medical schools are given in table 2. Comparison of this with similar data for last year reveals a very small increase in both total enrollment and numbers of first year medical students. Those students enrolled in the premedical year and required intern year are not included in the total enrollment in table 2.

It is pertinent to note that 82 United States citizens were enrolled in the first medical year in Canadian schools as compared to 4 Canadian citizens enrolled in the first year class of United States medical schools (table 12). More detailed information in regard to this can be found in the next section of this report.

GEOGRAPHICAL SOURCE OF ENTERING STUDENTS

Information as to the state of permanent residence for entering students was derived from the enrollment data submitted by the medical schools. Table 12 presents the residence of students at the time of their enrollment in the approved medical schools in the United States and Canada.

This table indicates that 41% of all first years students in the United States came from six states (New York, Pennsylvania, California, Ohio, Illinois, and Texas). It is interesting to note that the first year enrollment of all of the medical schools in these states represented 42% of the total enrollment, and that 38% of all medical schools are located in the same states.

There were less than 20 first year students in the medical schools in the United States from each of six states (Nevada, Delaware, Wyoming, New Hampshire, New Mexico, and Montana). The 76 students from these states represented only 1% of the total first year class. There are no medical schools in the six states concerned.

In table 13 are listed the states in ascending order according to the number of enrolled first year medical students per 100,000 population. The six states with the largest number of first year students are well scattered through this list, with half having less than the median number of students per 100,000 population (4.4) and half having more. The six states with the smallest number of first year students enrolled in medical schools, on the other hand, in all instances have fewer students than the median, and five of them are included in the eight states with the lowest freshman medical student representation.

Since last year's report, four states (Vermont, Rhode Island, South Dakota, and Utah) have all gained one or more first year students per 100,000 population. This is balanced by four other states (Nevada, Montana, Florida, and Arkansas) whose student per population ratio decreased by a similar amount.

There were 12 state and one city-owned school that limited enrollment to students who were residents of that state in which the schools were located. It is perhaps pertinent that other residents of these same states, equal in number to 34% of the first year enrollment of these 13 schools, were accepted in medical schools outside their own states. Legislative bodies perhaps should consider the effect that adoption by all medical schools of similarly complete restrictive admission policies would have on the numbers of their own residents who would be able to acquire a medical education. Attention is directed to the section on attrition, where the possible relationships between geographical restrictive admission policies, applications to medical schools, and attrition due to poor scholarship are discussed.

The section of table 12 that depicts the state of residence of students in Canadian medical schools is worthy of notice, for it brings out a fact that has been given little attention. There are 80 United States students enrolled in the first medical year of the Canadian schools. Since there are only four Canadian students in the first year class of our own schools, we are the recipient of a favorable balance that represents an educational opportunity equivalent to another medical school.

United States first year medical students in Canada come from 22 different states with New York (21), Massachusetts (11), and California (11) accounting for more than half of such students. All but two of the Canadian schools are involved, and McGill has 58 United States students in the first medical year. This is more than the first year enrollment in seven of our own approved four year schools and is larger than the entering class in any of our schools of basic medical sciences.

ENROLLMENT OF WOMEN STUDENTS

Information by school on the number of men and women students enrolled and graduated can be found in table 14. Jefferson and Dartmouth continued to limit enrollment to men, and Woman's Medical College enrolled only women students.

The number of women students attending medical school was slightly greater than the previous year, but the number of women graduates in the year covered by this report was the smallest since 1947.

Excluding Woman's Medical College, medical schools of three universities (Columbia; State University of New York, New York City; and University of Tennessee) enrolled 40 or more women, and in four schools (Howard, Columbia, University of Wisconsin, and University of Puerto Rico), women accounted for 10% or more of the total enrollment. Women represented 10% or more of the graduating class in six schools (University of Colorado, Howard, Louisiana State University, Southwestern, University of Wisconsin, and University of Puerto Rico).

Table 15 indicates the number and percentage of women enrolled and graduated by year since 1905. Although there is little evidence of significant change in recent years, the increased enrollment for the past two years may suggest that the absolute and relative decrease in women graduates will be of short duration.

MILITARY LIABILITY OF MALE MEDICAL STUDENTS

In the questionnaire sent to all approved medical schools, each school was asked to classify male students according to whether or not they had any military liability under the Universal Military Service and Training Act, as amended. Male students who had no basic liability for military service were defined as those person

TABLE 12.—*Geographical Source of*

	School	1 Alabama	2 Arizona	3 Arkansas	4 California	5 Colorado	6 Connecticut	7 Delaware	8 Dist. of Columbia	9 Florida	10 Georgia	11 Idaho	12 Illinois	13 Indiana	14 Iowa	15 Kansas	16 Kentucky	17 Louisiana
1	Medical College of Alabama	82	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	University	..	..	92	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	College of	..	..	..	78	..	..	1	..	1	..	2	..	..	..	..	2	..
4	University	..	1	..	65	..	..	..	1	..	..	..	..	..	..	..	..	..
5	Stanford	..	1	..	48	..	..	..	..	..	..	..	..	..	..	..	..	..
6	University of California School of Medicine, San Francisco	..	1	..	76	..	..	..	..	..	..	..	..	..	..	..	..	..
7	University of California School of Medicine, Los Angeles	..	1	..	47	..	..	..	..	..	..	..	..	..	..	..	..	..
8	University of Colorado School of Medicine	..	6	..	..	67	..	..	..	..	..	..	..	..	..	..	..	..
9	Yale University School of Medicine	..	..	..	2	..	13	1	1	..	..	..	..	2	1	..	..	..
10	*Georgetown University School of Medicine*	..	..	..	4	1	6	..	4	1	..	1	1	..	..	..	..	..
11	George Washington University School of Medicine	..	..	..	14	1	2	..	13	..	1	1	3	1	..	..	..	..
12	Howard University College of Medicine	..	..	1	2	1	1	..	7	..	..	..	6	..	..	1	1	2
13	Emory University School of Medicine	5	..	..	1	..	1	..	..	25	35	..	..	..	..	..	..	..
14	*Medical College of Georgia*	..	..	..	..	..	..	..	..	..	101	..	..	..	..	..	..	..
15	Chicago Medical School	..	..	..	..	..	1	..	..	..	..	..	10	..	..	..	..	..
16	Northwestern University Medical School	..	1	..	14	1	1	..	1	1	..	5	41	4	1	2	..	..
17	Stritch School of Medicine of Loyola University	..	..	..	2	..	..	..	..	..	..	..	49	4	..	..	..	..
18	University of Chicago, The School of Medicine	..	..	..	7	1	2	..	..	1	..	..	14	3	..	1	..	..
19	University of Illinois College of Medicine	..	..	..	..	..	1	..	..	..	..	..	163	..	..	..	..	..
20	Indiana University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	149	..	..	..	..
21	State University of Iowa College of Medicine	..	..	..	..	..	..	..	..	..	..	..	4	1	112	..	..	..
22	University of Kansas School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	89	..	..
23	University of Louisville School of Medicine	..	..	..	..	..	..	..	..	2	..	..	2	2	..	..	82	..
24	*Louisiana State University School of Medicine*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	126
25	Tulane University of Louisiana School of Medicine	9	1	3	1	..	1	..	..	20	4	..	2	1	..	1	3	35
26	Johns Hopkins University School of Medicine	2	..	1	5	..	1	..	1	1	1	..	4	1	..	..	..	..
27	University of Maryland School of Medicine	..	2	..	1	..	1	..	3	1	..	..	1	..	..	1	..	..
28	Boston University School of Medicine	..	..	..	..	..	4	..	..	..	1	..	..	..	..	1	1	..
29	Harvard Medical School	3	..	..	8	1	4	..	2	1	2	1	3	1	..	..	..	..
30	Tufts College Medical School	..	..	..	..	..	10	..	..	..	..	..	..	..	..	..	..	..
31	University of Michigan Medical School	..	..	..	3	1	2	..	..	..	..	..	1	3	..	..	..	..
32	Wayne University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
33	University of Minnesota Medical School	..	..	..	1	..	..	..	..	..	..	1	..	..	1	..	..	..
34	University of Mississippi School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
35	University of Missouri School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
36	St. Louis University School of Medicine	1	3	..	13	..	3	..	..	2	..	..	6	2	..	1	3	..
37	Washington University School of Medicine	..	1	1	3	..	..	..	..	2	..	4	8	2	1	..	1	..
38	Creighton University School of Medicine	..	3	..	15	1	2	..	..	..	..	2	2	..	10	..	..	..
39	University of Nebraska College of Medicine	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
40	Dartmouth Medical School	..	..	..	1	..	3	..	..	..	..	..	..	..	..	..	..	..
41	Albany Medical	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..
42	University of Bu	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
43	Columbia Univer	..	2	..	3	1	6	..	..	..	1	..	2	..	..	..	1	..
44	Cornell Universit	..	..	..	3	..	5	..	..	..	..	..	1	..	..	..	..	..
45	New York Medic itals	1	..	..	..	..	12	..	1	..	..	..	1	1	..	..	..	..
46	New York University College of Medicine	..	..	..	1	..	4	..	..	..	..	..	..	..	..	..	..	..
47	*State University of New York College of Medicine, New York City*	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
48	State University of New York College of Medicine, Syracuse	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
49	University of Rochester School of Medicine and Dentistry	..	..	..	1	..	1	..	..	1	..	..	4	..	..	..	..	..
50	University of North Carolina School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
51	Duke University School	3	..	..	2	1	..	..	..	11	2	..	..	..	..	..	..	..
52	Bowman Gray School of	1	..	..	3	..	..	..	1	3	2	..	4	..	1	..	..	..
53	University of North Dako	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
54	University of Cincinnati College of Medicine	..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	6	..
55	Western Reserve University School of Medicine	..	..	..	2	..	..	..	..	1	..	..	1	..	..	1	..	..
56	Ohio State University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
57	University of Oklahoma School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
58	University of Oregon Medical School	..	1	..	2	..	..	..	..	..	..	6	..	..	..	..	..	..
59	Hahnemann Medical College and Hospital of Philadelphia	1	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	..
60	Jefferson Medical College of Philadelphia	..	..	..	1	1	5	3	1	..	..	..	..	1	..	..	..	..
61	Temple University School of Medicine	..	1	..	3	..	1	2	..	..	..	..	..	..	..	..	..	..
62	University of Pennsylvania School of Medicine	2	1	..	2	..	..	..	..	..	..	..	1	1	..	2	1	..
63	Woman's Medical College of Pennsylvania	1	..	..	4	..	2	..	..	..	..	..	1	..	..	..	..	..
64	University of Pittsburgh School of Medicine	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
65	Medical College of South Carolina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
66	University of South Dakota School of Medical Sciences	..	..	..	2	..	..	..	..	..	..	..	..	..	2	..	..	..
67	University of Tennessee College of Medicine	4	2	5	..	..	..	..	..	9	1	..	1	1	..	..	5	..
68	Meharry Medical College	5	..	..	1	..	..	..	1	5	4	..	..	..	..	..	..	..
69	Vanderbilt University School of Medicine	3	..	..	1	..	..	..	..	5	1	..	1	..	1	..	4	..
70	University of Texas Southwestern Medical School	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
71	University of Texas School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
72	*Baylor University College of Medicine*	1	..	..	3	..	..	..	2	..	..	..	7	..	..	..	..	..
73	University of Utah School of Medicine	..	2	..	2	..	..	..	1	..	..	5	..	..	..	..	..	..
74	University of Vermont College of Medicine	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..
75	University of Virginia Department of Medicine	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	..
76	Medical College of	..	..	..	..	..	..	..	..	3	..	..	..	..	..	1	1	..
77	University of Washir	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..
78	West Virginia Univer	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
79	University of Wisconsin Medical School	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
80	Marquette University School of Medicine	..	2	..	5	1	..	..	..	..	..	..	11	1	1	..	1	..
81	University of Puerto Rico School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
	T	124	32	103	455	79	105	8	41	96	156	30	357	183	131	102	113	169
82	Unive	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
83	Unive	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..
84	University of Manitoba Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
85	Dalhousie University Faculty of Medicine	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
86	Queen's University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
87	University of Ottawa Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
88	rio Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
89	lty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
90	f Medicine	..	..	..	9	..	4	1	..	..	..	..	2	..	..	..	..	..
91	ulty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
92	f Medicine	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
93	College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Totals	..	..	..	11	..	3	1	..	1	..	..	2	..	..	..	..	..
	Grand totals	124	32	103	466	79	110	9	41	97	156	30	359	183	131	102	113	169
	Marginal No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

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* *Figures are for students in beginning premedical year.*

18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	
Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Territories and Possessions	Canada	Foreign	Home State	Out of State	Totals	Marginal No.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	82	0	82	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	92	0	92	2
1	1	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1	..	..	..	..	2	1	..	..	1	..	..	..	1	..	2	78	19	97	3
..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	65	4	69	4
..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	2	1	..	48	12	60	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	76	1	77	6
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47	2	49	7
..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..	67	18	85	8
..	2	8	1	1	..	1	..	..	..	1	8	1	23	..	..	2	1	..	3	2	..	..	..	..	..	2	1	..	..	1	..	..	..	1	13	66	79	9
1	3	7	..	..	..	..	..	..	..	1	17	..	39	..	..	2	..	..	13	3	..	..	..	..	..	..	1	1	..	..	..	..	..	2	4	104	108	10
1	6	1	4	1	..	1	1	..	..	..	5	..	12	..	..	1	2	..	7	..	..	..	..	..	7	..	8	1	1	4	..	1	..	2	13	89	102	11
..	2	2	2	..	1	1	..	..	..	..	6	..	6	1	..	2	1	..	7	..	1	..	..	1	..	..	1	..	..	..	..	2	..	15	7	66	73	12
..	..	..	..	..	..	..	..	..	..	..	1	1	..	2	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	1	35	40	75	13
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	101	0	101	14
..	..	..	..	..	..	..	..	..	..	..	3	..	56	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	10	63	73	15
..	..	..	4	2	..	2	2	1	..	..	3	..	9	..	1	8	3	..	2	..	..	1	..	..	6	..	1	4	1	5	..	2	..	1	41	89	130	16
..	..	..	11	3	..	..	..	..	..	..	1	..	5	1	..	6	..	..	4	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2	49	40	89	17
..	1	2	..	..	..	1	..	1	..	..	5	..	20	..	..	4	..	..	4	..	..	..	..	..	..	..	..	1	..	2	..	..	..	2	14	58	72	18
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	163	3	166	19
..	..	..	..	..	..	1	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	149	5	154	20
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	1	112	8	120	21
..	..	..	..	..	..	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	89	13	102	22
..	..	1	..	..	1	..	..	..	..	..	2	1	3	..	..	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	82	18	100	23
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	126	0	126	24
..	..	1	..	2	21	4	..	..	..	..	1	..	2	..	..	1	3	1	1	..	..	..	..	11	..	..	..	..	..	..	..	3	..	2	35	102	137	25
1	11	7	..	..	..	..	..	..	..	..	8	..	10	1	..	3	..	..	3	2	2	..	..	4	..	..	2	1	3	..	..	1	..	4	11	69	80	26
..	60	..	..	..	..	..	..	..	..	..	4	..	2	..	..	2	..	..	4	..	..	..	..	..	3	..	..	1	1	..	..	1	..	..	60	28	88	27
3	..	45	..	..	..	..	..	..	..	..	3	..	6	..	..	..	..	..	2	4	..	..	..	..	..	1	..	..	..	..	..	1	..	3	45	30	75	28
3	1	23	2	2	..	1	..	1	..	1	8	..	23	1	..	3	..	..	6	3	..	3	1	..	..	1	1	1	..	2	..	..	..	2	23	92	115	29
9	..	67	..	..	..	..	..	..	..	6	2	..	7	..	..	..	..	..	..	8	..	..	..	..	..	..	..	..	1	..	..	2	..	..	67	45	112	30
1	2	..	168	..	1	..	..	..	..	..	2	1	3	..	..	6	..	..	1	..	..	..	..	..	..	..	..	..	1	4	..	3	..	2	168	37	205	31
..	..	..	75	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	75	0	75	32
..	..	..	1	112	..	..	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	..	1	1	2	112	15	127	33
..	..	..	..	..	56	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	56	0	56	34
..	..	..	..	..	..	45	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	45	0	45	35
..	..	4	2	5	2	24	1	1	..	..	8	..	4	1	2	12	1	1	5	..	..	..	1	1	..	..	..	5	2	..	1	7	..	1	24	101	125	36
..	..	2	..	1	3	26	2	..	..	..	1	..	4	..	..	2	9	..	3	1	..	..	..	3	..	..	1	4	..	..	..	..	..	2	26	61	87	37
..	1	..	1	4	..	1	..	16	..	..	1	..	7	..	..	1	..	..	1	..	..	2	..	..	..	..	..	3	..	1	..	2	..	..	16	60	76	38
..	..	..	..	..	..	..	..	81	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	2	81	5	86	39
..	..	4	1	..	..	..	..	..	..	3	4	..	3	..	..	1	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	21	24	40
..	..	2	..	..	..	..	..	..	..	..	4	..	52	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	1	52	12	64	41
..	..	4	..	..	..	..	..	..	..	..	3	..	70	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	70	10	80	42
1	2	6	1	1	..	3	..	..	..	1	13	..	59	1	..	3	..	..	3	..	..	..	1	..	..	..	2	1	2	..	..	..	..	3	59	61	120	43
..	1	5	..	..	..	..	1	..	..	..	9	..	45	..	..	4	..	1	..	1	1	..	..	2	3	..	..	..	..	..	..	..	..	1	45	38	83	44
..	1	8	..	..	..	..	..	..	..	..	22	..	74	..	..	..	..	..	5	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	74	54	128	45
..	..	3	..	..	..	..	..	..	..	..	20	..	100	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	1	..	..	..	5	100	37	137	46
..	..	..	..	..	..	..	..	..	..	..	10	..	138	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	138	13	151	47
..	..	..	..	..	..	..	..	..	..	..	3	..	71	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	71	5	76	48
..	..	5	..	..	..	..	..	..	..	..	4	..	41	..	..	6	..	..	5	..	..	..	..	..	..	..	..	1	..	1	2	..	..	..	41	31	72	49
..	..	..	..	..	..	..	..	..	..	..	..	..	2	64	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	64	2	66	50
..	3	1	..	..	..	..	..	..	..	..	1	..	4	34	..	1	..	..	2	..	1	..	2	..	..	..	4	..	2	..	..	2	..	..	34	43	77	51
..	..	..	..	1	..	..	..	..	..	..	1	..	9	22	..	1	..	..	..	..	1	..	1	..	..	..	1	..	..	1	..	..	..	1	22	32	54	52
..	..	..	..	1	..	..	1	..	..	..	..	..	2	..	36	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	36	6	42	53
..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	73	..	..	[illegible]	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	73	17	90	54
..	..	..	3	..	..	2	..	..	..	..	3	..	6	..	1	50	..	..	8	..	..	..	..	..	..	..	..	2	2	..	..	..	..	2	50	34	84	55
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	150	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	150	0	150	56
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	96	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	96	0	96	57
..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	62	..	..	..	..	..	..	..	..	..	2	..	..	..	1	..	2	62	16	78	58
..	..	..	..	..	..	..	..	..	..	1	19	..	4	..	..	1	..	..	74	1	..	..	..	1	..	..	..	1	..	..	..	1	..	..	74	33	107	59
..	1	..	..	..	1	1	..	..	..	..	21	..	6	..	..	8	..	..	119	1	..	..	..	..	..	..	1	1	3	..	..	..	..	..	119	56	175	60
..	..	..	..	1	..	..	..	..	..	..	10	..	3	..	..	2	..	..	108	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	108	23	131	61
..	3	4	..	1	1	..	..	..	..	..	11	..	5	5	..	4	..	..	80	3	..	..	1	..	..	..	1	..	..	1	..	..	..	..	80	50	130	62
..	..	..	..	1	1	..	..	..	..	..	8	..	10	..	..	2	..	..	14	..	..	..	..	..	..	..	..	..	..	1	..	1	1	4	14	37	51	63
..	..	1	..	1	..	..	..	..	..	..	1	..	..	..	..	2	..	..	92	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	92	8	100	64
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	79	..	..	..	..	..	..	..	..	..	..	..	..	..	79	0	79	65
..	..	..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	..	..	..	..	..	30	..	..	..	..	..	..	..	..	..	..	..	..	30	7	37	66
..	..	..	..	..	14	4	..	..	..	..	1	1	2	5	..	..	2	..	..	..	..	..	162	..	..	..	..	..	..	..	..	..	..	2	162	59	221	67
..	5	..	1	..	8	3	..	..	..	..	2	..	2	6	..	..	..	..	4	..	4	..	5	2	..	..	9	..	1	..	..	..	..	2	5	67	72	68
..	2	..	1	..	3	1	..	1	..	..	..	..	3	..	..	3	1	..	1	..	2	..	13	2	..	..	1	..	..	..	..	..	..	1	13	40	53	69
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	108	..	..	..	..	..	..	..	..	..	..	108	0	108	70
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	172	..	..	..	..	..	..	..	..	..	..	172	0	172	71
..	1	1	..	..	1	2	..	1	..	..	1	5	3	..	..	1	3	..	1	..	..	..	..	42	..	..	..	..	..	..	2	..	..	8	42	43	85	72
..	..	..	..	..	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	42	..	..	..	..	..	..	..	..	1	42	14	56	73
7	..	4	..	..	..	..	..	..	..	3	..	..	6	..	..	..	..	..	..	..	..	..	..	..	..	28	..	..	..	..	..	..	..	..	28	24	52	74
..	2	..	..	..	1	..	..	..	..	..	3	..	3	1	..	1	1	..	1	..	..	..	2	..	..	..	50	..	5	..	..	1	..	2	50	26	76	75
..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	..	..	..	1	..	..	..	..	..	..	74	..	1	..	..	..	..	..	74	10	84	76
..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	66	..	..	..	1	1	..	66	10	76	77
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32	..	..	..	..	..	32	0	32	78
..	..	..	..	..	..	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	78	..	..	..	..	78	4	82	79
..	..	1	3	7	1	..	..	..	..	..	2	..	5	..	1	6	..	..	2	..	..	1	..	..	1	..	..	1	..	41	1	2	..	3	44	59	103	80
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	51	..	..	51	1	52	81
28	111	220	282	147	116	133	19	104	1	17	268	19	979	146	42	376	124	67	602	34	93	38	190	354	66	33	161	105	62	154	12	91	4	94	5,210	2,366	7,576	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	60	..	60	0	60	82
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	53	2	53	5	58	83
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	59	9	59	10	69	84
1	..	1	..	..	..	..	..	..	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	48	3	48	10	58	85
..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	61	..	61	3	64*	86
..	..	2	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	58	..	58	6	64	87
..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	60	..	60	1	61	88
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	129	1	129	1	130*	89
3	..	6	1	..	..	1	..	1	..	..	2	..	14	..	..	2	1	1	4	..	..	..	1	..	..	..	..	4	1	..	..	..	52	7	52	65	117	90
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	116	1	116	2	118	91
..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	118	..	118	3	121*	92
..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37	2	37	3	40	93
5	..	11	2	1	..	1	..	1	..	1	3	..	21	..	..	3	1	1	4	..	..	..	1	..	..	1	..	4	1	..	..	2	851	25	851	109	960	
33	111	231	284	148	116	134	19	105	1	18	271	19	1,000	146	42	379	125	68	606	34	93	38	191	354	66	34	161	109	63	154	12	93	855	119	6,061	2,475	8,536	
18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	

who had: (1) between Dec. 7, 1941, and Sept. 7, 1945, served on active military duty in excess of 90 days; or (2) between Sept. 16, 1940, and June 24, 1948, served on active military duty in the armed forces for more than one year; or (3) after June 24, 1948, served on active military duty in the armed forces for two years or more and ended service with an honorable discharge.

Table 16 presents data showing by class the number of male students with and without military liability based on the definitions given above. It is not possible to compare the data with veteran and nonveteran enrollment published in preceding years since different definitions were used.

Male students liable for military service comprised 82% of the first year class, 83% of the second year, 80% of the third year, and 73% of the fourth year.

TABLE 13.—*Ratio of Freshman Students to State Populations, 1954-1955*

Numbers of students per 100,000 population* in the medical and basic sciences schools of the United States

†Nevada	0.5	Maryland	4.4
†Delaware	2.2	Ohio	4.4
†New Mexico	2.5	Massachusetts	4.5
†Florida	2.8	Minnesota	4.7
†Montana	3.0	Virginia	4.7
†Maine	3.1	Connecticut	4.8
Missouri	3.2	†Idaho	4.9
†New Hampshire	3.2	District of Columbia	5.0
West Virginia	3.2	Iowa	5.0
†Arizona	3.3	Kansas	5.2
North Carolina	3.5	†New Jersey	5.2
California	3.7	Mississippi	5.3
Illinois	3.9	Arkansas	5.4
Kentucky	3.9	Colorado	5.6
Alabama	4.0	Oklahoma	5.6
Michigan	4.0	Pennsylvania	5.6
†Wyoming	4.0	Tennessee	5.7
Oregon	4.1	Louisiana	5.8
†Rhode Island	4.3	South Dakota	5.8
South Carolina	4.3	New York	6.4
Texas	4.3	North Dakota	6.6
Washington	4.3	Nebraska	7.7
Wisconsin	4.3	Vermont	8.6
Georgia	4.4	Utah	8.8
Indiana	4.4	United States	4.6

* Estimated July 1, 1954, total population excluding members of the armed forces stationed in each area. Population Estimates, Current Population Reports, Oct. 25, 1954, Series P-25, No. 104, Washington, D. C.
† State with no approved medical school.

It is to be noted that the number cited as liable for service makes no allowance for physical disabilities and other factors that would render an unknown percentage ineligible for service.

PREPROFESSIONAL REQUIREMENTS AND ATTAINMENTS OF THE ENTERING CLASS

Since January, 1953, the minimum requirement for admission to an approved medical school has been three years of college preparatory study. The Council on Medical Education and Hospitals in accepting this minimum recommends for most students a full four year college course in order that a broader background education may be obtained. In its "Essentials of an Acceptable Medical School" the Council also makes provision for the unusually intelligent and mature student, stating that "rarely a school will be justified in admitting a superior student under exceptional conditions after two years of college work."

For purposes of this report, medical schools were asked to stipulate the minimum number of years of col-

TABLE 14.—*Distribution of Students and Graduates in the United States and Canada by Sex, 1954-1955*

	Students		Graduates	
United States	Men	Women	Men	Women
Medical College of Alabama	294	16	77	3
University of Arkansas	303	16	75	4
College of Medical Evangelists	364	22	88	4
University of Southern California	263	12	71	4
Stanford University	223	19	108	8
University of California, San Francisco	294	14	74	4
University of California, Los Angeles	131	9	24	2
University of Colorado	282	26	66	9
Yale University	299	21	75	4
Georgetown University	420	28	105	5
George Washington University	345	17	79	1
Howard University	249	28	67	8
Emory University	281	6	67	2
Medical College of Georgia	319	17	71	5
Chicago Medical School	278	3	62	1
Northwestern University	512	20	132	6
Stritch School of Medicine	322	11	76	3
University of Chicago	264	14	63	4
University of Illinois	620	36	158	12
Indiana University	564	16	129	2
State University of Iowa	446	10	107	0
University of Kansas	435	14	117	4
University of Louisville	361	20	89	2
Louisiana State University	411	31	106	12
Tulane University	501	14	127	2
Johns Hopkins University	266	22	68	5
University of Maryland	370	13	96	4
Boston University	277	19	71	5
Harvard Medical School	487	35	129	10
Tufts College Medical School	430	16	108	2
University of Michigan	723	38	167	6
Wayne University	261	14	65	2
University of Minnesota	455	23	112	4
University of Mississippi	108	6	..	..
St. Louis University	470	9	115	1
University of Missouri	92	1	...	..
Washington University	350	17	92	5
Creighton University	301	9	78	1
University of Nebraska	322	11	77	4
Dartmouth Medical School	47	0	...	..
Albany Medical College	209	6	51	0
University of Buffalo	272	12	66	4
Columbia University	421	45	104	9
Cornell University	320	18	83	2
New York Medical College	459	22	111	5
New York University	503	37	125	10
State University of New York, New York	549	40	131	4
State University of New York, Syracuse	272	12	68	3
University of Rochester	262	12	65	2
Duke University	297	14	74	3
University of North Carolina	234	7	58	1
Bowman Gray School of Medicine	195	9	48	3
University of North Dakota	82	2	...	..
Ohio State University	552	15	134	2
University of Cincinnati	336	9	88	1
Western Reserve University	302	24	81	5
University of Oklahoma	378	10	98	2
University of Oregon	286	13	76	1
Hahnemann Medical College	378	15	90	2
Jefferson Medical College	682	0	169	0
Temple University	473	24	117	8
University of Pennsylvania	475	30	122	8
University of Pittsburgh	364	13	93	3
Woman's Medical College of Pennsylvania	...	181	...	40
Medical College of South Carolina	282	11	64	2
University of South Dakota	62	1	...	..
Meharry Medical College	252	8	62	0
University of Tennessee	764	40	182	6
Vanderbilt University	193	10	46	2
Baylor University	335	18	86	6
Southwestern Medical School	371	29	90	10
University of Texas	586	36	141	7
University of Utah	203	7	51	2
University of Vermont	183	8	46	0
Medical College of Virginia	345	22	95	5
University of Virginia	278	6	62	1
University of Washington	267	19	66	4
West Virginia University	61	3	...	..
Marquette University	379	18	94	6
University of Wisconsin	290	29	68	7
University of Puerto Rico	154	29	36	6
Totals	27,046	1,537	6,632	345
Canada				
University of Alberta	219	11	54	3
University of British Columbia	211	20	50	8
University of Manitoba	240	12	72	4
Dalhousie University	220	9	47	1
Queen's University	225 *	11	49	6
University of Ottawa	194 †	6	47	1
University of Toronto	527 ‡	56	141	14
University of Western Ontario	222	15	56	4
Laval University	440 §	23	132	2
McGill University	409	24	103	9
University of Montreal	395	28	84	7
University of Saskatchewan	63	9	...	..
Totals	3,365	224	835	59
Grand totals	30,411	1,761	7,467	404

* 59 men and 5 women premedical students, 49 men and 6 women fifth year medical students excluded.
† 31 men and 3 women premedical students, 45 men fifth year students excluded.
‡ 242 men and 25 women premedical students excluded.
§ 115 men and 6 women premedical students excluded.

lege work required for admission. One school indicated that the minimum requirement was two years, 72 schools require three years and 8 schools require four years. This information can be found in table 1.

Table 17 presents the composition of the entering class of 1954-1955 of each school according to the number of years of college preparatory work. The number and percentage of entering students holding college degrees are also given.

TABLE 15.—*Women in Medicine in the United States, 1905-1955*

Year	Women Students	Percentage of All Students	Women Graduates	Percentage of All Graduates
1905	1,073	4.1	219	4.0
1910	907	4.0	116	2.6
1915	592	4.0	92	2.6
1920	818	5.8	122	4.0
1925	910	5.0	204	5.1
1926	935	5.0	212	5.4
1927	964	4.9	189	4.7
1928	929	4.5	207	4.9
1929	925	4.4	214	4.8
1930	955	4.4	204	4.5
1931	990	4.5	217	4.6
1932	955	4.3	208	4.2
1933	1,056	4.7	214	4.4
1934	1,020	4.5	211	4.2
1935	1,077	4.7	207	4.1
1936	1,133	5.0	246	4.7
1937	1,113	5.1	238	4.4
1938	1,161	5.4	237	4.6
1939	1,144	5.4	260	5.1
1940	1,145	5.4	253	5.0
1941	1,146	5.4	280	5.3
1942	1,164	5.3	279	5.4
1943	1,150	5.1	241	4.6
1944	1,176	5.0	239	4.7
1944 (2nd session)	1,141	4.6	252	4.9
1945	1,352	5.6	262	5.1
1946	1,868	8.0	242	4.2
1947*	2,183	9.1	342	5.4
1948	2,159	9.5	392	7.1
1949	2,100	8.9	612	12.1
1950	1,806	7.2	595	10.7
1951	1,564	5.9	468	7.6
1952	1,471	5.4	351	5.7
1953	1,463	5.3	363	5.5
1954	1,502	5.3	360	5.2
1955	1,537	5.4	345	4.9

* Includes additional classes.

TABLE 16.—*Military Liability of Male Medical Students, 1954-1955*

	First Yr.	Second Yr.	Third Yr.	Fourth Yr.	Totals
Men with no military liability	1,282	1,130	1,336	1,795	5,543
Men with military liability	5,857	5,589	5,251	4,806	21,503
Total enrollment	7,139	6,719	6,587	6,601	27,046

Study of these tables reveals that what several schools reported as minimal requirements might be better termed usual requirements, since of the eight schools that specified four years of college as a prerequisite to admission, six admitted students with three years of college work. Conversely, of the five schools that admitted only students who had four years of college, three stipulated three years as the minimal requirement. Thus, one might presume that in these instances the usual requirement is four years. This is in keeping with the general practice of medical schools as a group, since 75% of all students in the entering class had had four years of college. Twenty-five per cent had had three years of college study, and no one was admitted with only two years.

TABLE 17.—*Premedical Training of Freshman Students in the United States and Canada, 1954-1955*

	No. of Freshmen	Three Yr. College Training	Four Yr. College Training	No. Holding Degrees	Percentage with Degrees
Medical College of Alabama	82	18	64	63	77.8
University of Arkansas	92	42	50	41	44.6
College of Medical Evangelists	97	1	96	96	99.0
University of Southern California	69	16	53	34	49.3
Stanford University	60	31	29	29	48.3
University of California, San Francisco	77	37	40	33	42.9
University of California, Los Angeles	49	5	44	44	89.8
University of Colorado	85	25	60	51	60.0
Yale University	79	12	67	67	84.8
Georgetown University	108	5	103	103	95.4
George Washington University	102	33	69	69	67.6
Howard University	73	0	73	73	100.0
Emory University	75	23	52	52	69.3
Medical College of Georgia	101	19	82	68	67.3
Chicago Medical School	73	0	73	73	100.0
Northwestern University	130	39	91	79	60.8
Stritch School of Medicine	89	35	54	49	55.1
University of Chicago	72	30	42	60	83.3
University of Illinois	166	83	83	73	44.0
Indiana University	154	87	67	67	43.5
State University of Iowa	120	59	61	59	49.2
University of Kansas	102	21	81	80	78.4
University of Louisville	100	15	85	84	84.0
Louisiana State University	126	48	78	53	42.1
Tulane University	137	55	82	78	56.9
Johns Hopkins University	80	0	80	80	100.0
University of Maryland	88	34	54	49	55.7
Boston University	75	2	73	72	96.0
Harvard Medical School	115	9	106	106	92.2
Tufts College Medical School	112	4	108	108	96.4
University of Michigan	205	90	115	115	56.1
Wayne University	75	28	47	47	62.7
University of Minnesota	127	48	79	44	34.6
University of Mississippi	56	21	35	35	62.5
St. Louis University	125	24	101	90	72.0
University of Missouri	45	16	29	29	64.4
Washington University	87	18	69	64	73.6
Creighton University	76	27	49	46	60.5
University of Nebraska	86	39	47	43	50.0
Dartmouth Medical School	24	23	1	1	4.2
Albany Medical College	64	0	64	64	100.0
University of Buffalo	80	13	67	63	78.7
Columbia University	120	2	118	118	98.3
Cornell University	83	7	76	76	91.6
New York Medical College	128	0	128	126	98.4
New Y	137	15	122	122	89.1
State New York City	151	12	139	131	86.8
State University of New York, Syracuse	76	22	54	54	71.1
University of Rochester	72	7	65	65	90.3
University of North Carolina	66	21	45	45	68.2
Duke University	77	21	56	54	70.1
Bowman Gray School of Medicine	54	11	43	43	79.6
University of North Dakota	42	21	21	19	45.3
University c	90	8	82	82	91.1
Western Res	84	1	83	82	97.6
Ohio State	150	9	141	138	92.0
University c	96	27	69	46	47.9
University of Oregon	78	33	45	37	47.4
Hahnemann Medical College	107	3	104	104	97.2
Jefferson Medical College	175	3	172	172	98.3
Temple University	131	12	119	116	88.5
University of Pennsylvania	130	2	128	124	95.4
Woman's Medical College	51	2	49	49	96.1
University of Pittsburgh	100	5	95	92	92.0
Medical College of South Carolina	79	13	66	60	75.9
University of South Dakota	37	20	17	17	45.9
University of Tennessee	221	121	100	81	36.7
Meharry Medical College	72	1	71	70	97.2
Vanderbilt University	53	23	30	30	56.6
Southwestern Medical School	108	30	78	63	58.3
University of Texas	172	63	109	107	62.2
Baylor University	85	32	53	49	57.6
University of Utah	56	23	33	28	50.0
University of Vermont	52	6	46	43	82.7
University of Virginia	76	4	72	72	94.7
Medical College of Virginia	84	12	72	71	84.5
University of Washington	76	21	55	49	64.5
West Virginia University	32	10	22	20	62.5
University of Wisconsin	82	65	17	17	20.7
Marquette University	103	47	56	52	50.5
University of *Puerto Rico*	52	10	42	45	86.5
Totals	7,576	1,880	5,696	5,403	71.1

Only a relatively few schools mention the baccalaureate degree as a condition of admission. Of those that do, some specify that the degree must be obtained before matriculating in medical school, and others make it permissive to obtain the degree any time up to the beginning of the second medical school year. Four schools admitted only students holding degrees at the time of matriculation; and only two of these schools specify this as a requirement. Since 75% of the entering students had had four college years, it is not surprising that 70% held a baccalaureate degree at the time of matriculation. Previous experience indicates that another 15-20% will later acquire the degree, earned on work done in part in the medical school.

COLLEGE RECORD

Table 18 compares the college scholastic record of the entering class of 1954-1955 with that of 1953-1954. It is evident that there has been a small decrease in the number of admitted students with a 3.6-4.0 (A) record with an equivalent increase in the number of students with a 1.0-2.5 (C) record. The college record of this year's class is very similar to that of 1952-1953.

Inquiries addressed to this Council illustrate the need for emphasizing that college academic achievement as measured by scholastic records is only one factor used in the selection of medical students. Over a period of years, most if not all medical schools admit students with an over-all college average of "C" when other factors appear to justify such action.

TABLE 18.—*Comparison of College Record, Freshman Class, 1953-1954 and 1954-1955*

College Grade Average	Percentage of 1953-1954 Freshman Class	Percentage of 1954-1955 Freshman Class
3.6-4.0 (A)	21.1	16.8
2.6-3.5 (B)	68.9	69.0
1.0-2.5 (C)	10.0	14.2

TRANSFER OF STUDENTS FROM SCHOOLS OF BASIC MEDICAL SCIENCES TO FOUR YEAR MEDICAL SCHOOLS

In last year's report data was given showing the medical schools which accepted graduates of the basic medical sciences schools as transfer students with advanced standing. This data covered a five year period (1949-1953) and revealed that all such students during this period were successfully transferred. It is planned to collect similar data every five years, and in the interim students and their faculty advisors in the schools of basic medical sciences are advised to consult the 54th Annual Report on Medical Education.

ATTRITION OF MEDICAL STUDENTS

In the last annual report, a section was devoted to student losses for the academic year 1952-1953. This year it was possible to obtain from the medical schools data on student attrition for the academic year 1954-1955 covered by this report, and it is planned to publish similar current information in succeeding reports so that losses in any given class can be shown throughout the four years that class is in medical school.

Table 19 depicts by class and cause students lost to medicine during 1954-1955. Comparison of these figures with those for 1952-1953 reveals remarkable constancy in the percentage of total losses in each class and the total losses in relationship to the total enrollment for the years concerned.

Two-thirds of all losses were in the first year class and 62% of those losses were due to failure or withdrawal in poor academic standing. In the second year class, losses due to poor academic standing or failure represented 66% of all losses, but, in both the third and fourth year classes, more than two-thirds of the losses were students who withdrew in good academic standing. This discrepancy as to cause of attrition between the first two and last two classes was evident in the previous study, and it again seems valid to point out that withdrawals in good academic standing during the last years of medical school study represent a challenge to improve counseling and perhaps to a need for better sources of financial assistance. Students who are unable to maintain acceptable academic records represent a necessary loss, but those whose academic achievement is satisfactory and who withdraw for other causes in many instances must represent a loss that could and probably should be avoided.

TABLE 19.—*Attrition in the Approved Medical Schools in the United States, 1954-1955*

	Enrollment	Failed	Withdrew, Poor Standing	Withdrew, Good Standing	Totals	Percentage of Enrollment Lost
First year	7,576	200	58	161	419	5.5
Second year	7,104	79	7	45	131	1.8
Third year	6,957	18	1	42	61	0.8
Fourth year	6,946	4	3	17	24	0.3
Totals	28,583	301	69	265	635	

In last year's report a possible relationship between losses due to unsatisfactory scholastic achievement and admission policies imposing geographical restrictions was brought out. Data for 1954-1955 appear to offer further evidence in support of this observation.

Table 20 shows, by type of school ownership, data referable to enrollments, applications, and attrition due to unsatisfactory scholarship for the first year class.

TABLE 20.—*First Year Enrollments, Applications, and Attrition with Poor Scholarship by Type of School Ownership, 1954-1955*

	State or Municipally Owned	Privately Owned
No. of schools *	39	41
Percentage of enrollment	50	50
Percentage of enrollment from out of state	9	53
Percentage of applications	26	74
Percentage of failures and withdrawals in poor academic standing	70	30

* Puerto Rico figures not available.

It can be seen that the total first year enrollment was shared equally by public and private schools. The entering students in public schools were largely residents of the states in which the schools are located; whereas, more than half the students entering private schools were out-of-state residents.

It is also evident that public schools had a much smaller percentage of the total applications to consider in selecting their first year class. Although this appears to be a valid observation, the discrepancy is modified to some degree by fact that applicants to private schools tend to file more applications than do those to public schools (table 21). Figures in table 20 refer to applications not applicants.

Lastly, it is to be noted that a large percentage of all student failures and withdrawals in poor academic standing occur in the public schools. Certainly there is no proof available that this is directly related to the other data presented. With no evidence to the contrary, however, it does seem reasonable to consider that there is a suggestive relationship between admission policies restrictive on a geographical basis with a smaller population from which to draw first year medical students and a higher incidence of student losses with poor academic records.

THE NEXT ENTERING CLASS

Information currently available suggests that in 1955-1956 there will be little if any significant change in the number of openings available in the first year classes of existing approved medical schools. The Medical School at Miami University is expected to be eligible for approval during the coming year, and figures for its first year as well as all other classes will be included in the next report. The Albert Einstein College of Medicine at Yeshiva University will enroll its first class for the academic year 1955-1956, and subsequently its students will enlarge the number for next year's first year classes.

The number of applicants for the study of medicine has decreased annually for the past five years.[11] It is encouraging to note that the increment of loss this year was considerably less than in the previous four years, so that it may be hoped that a plateau has been reached. If there should be a continuing decrease in the number of applicants for medical schools, it is possible the schools will not be able to fill all available openings with qualified candidates.

GRADUATES

There was again a record number of graduates of approved medical schools in the United States. The 6,977 graduates of this year represent an increase of 1.7% over last year. Almost half of the increase was due to the discontinuation of the required internship at Stanford so that there were two graduating classes at that institution. Approximately one-quarter of the increase was the result of the addition of the class at the newly approved School of Medicine of the University of California at Los Angeles, and the remaining quarter was due to an increase in the size of graduating classes at other schools.

Four medical schools (Tennessee, Michigan, Illinois, and Jefferson) each graduated more than 150 students, and five schools (University of California, Los Angeles; Woman's Medical; Puerto Rico; Vermont; and Vanderbilt) had fewer than 50 students in their graduating classes.

Information in regard to the number of graduates each year since 1930 can be found in table 11. With

TABLE 21.—*Number of Completed Applications Acted upon by Each Medical School and the Total Number of Applications Filed by These Applicants, 1954-1955* *

	Size of Freshman Class	Applicants to Each Medical School			Total Applications Filed by Applicants to Each School	Average Number of Applications per Applicant
		Men	Women	Total		
Alabama	83	184	10	194	483	2.5
Albany	64	890	38	928	8,200	8.8
Arkansas	92	135	6	141	221	1.6
Baylor	84	593	35	628	3,930	6.3
Boston	72	847	61	908	7,819	8.6
Bowman Gray	54	457	20	477	3,864	8.1
Buffalo	79	493	22	515	4,230	8.2
California, Los Angeles	50	354	27	381	2,628	6.9
California, San Francisco	76	356	34	390	2,578	6.6
Chicago Medical	73	820	35	855	7,680	9.0
Chicago, University of	72	652	35	687	6,057	8.8
Cincinnati	90	677	25	702	5,104	7.3
Colorado	86	155	13	168	280	1.7
Columbia University College of Physicians and Surgeons	120	1,400	114	1,514	11,184	7.4
Cornell	82	1,226	89	1,315	10,091	7.7
Creighton	76	597	24	621	4,479	7.2
Dartmouth	24	223	3	226	2,085	9.2
Duke	77	546	27	573	4,129	7.2
Emory	75	532	22	554	3,431	6.2
Georgetown	108	789	49	838	6,895	8.2
George Washington	102	852	30	882	6,907	7.9
Georgia	103	202	6	208	426	2.0
Hahnemann	107	1,070	54	1,124	8,504	7.6
Harvard	115	1,062	77	1,139	7,517	6.6
Howard	74	412	32	444	1,954	4.4
Illinois	166	460	32	492	1,898	3.9
Indiana	152	369	18	387	1,489	3.8
Iowa	120	138	6	144	236	1.6
Jefferson	175	1,838	1	1,839	12,196	6.6
Johns Hopkins	79	379	35	414	3,012	7.3
Kansas	101	281	19	300	1,444	4.8
Louisiana	124	289	24	313	1,395	4.2
Louisville	102	195	17	212	753	3.6
Loyola (Stritch)	89	667	24	691	4,569	6.6
Marquette	102	829	47	876	5,746	6.6
Maryland	88	315	16	331	2,200	6.6
Medical Evangelists	98	176	11	187	336	1.8
Meharry	72	408	24	432	1,227	2.8
Michigan	204	464	48	512	2,012	3.9
Minnesota	126	282	16	298	1,271	4.3
Mississippi	57	127	4	131	198	1.5
Missouri	45	113	5	118	393	3.3
Nebraska	86	201	8	209	643	3.1
New York Medical	129	1,683	108	1,791	13,432	7.5
New York University	137	1,295	92	1,387	11,332	8.2
North Carolina	69	208	9	217	832	3.8
North Dakota	42	131	2	133	663	5.0
Northwestern	130	1,505	72	1,577	10,594	6.7
Ohio State	151	399	16	415	1,533	3.7
Oklahoma	96	187	6	193	573	3.0
Oregon	78	288	22	310	1,884	6.1
Pennsylvania	130	1,571	88	1,659	12,095	7.3
Pittsburgh	97	555	23	578	3,400	5.9
Rochester	72	782	39	821	7,147	8.7
St. Louis	120	980	30	1,010	7,275	7.2
South Carolina	79	130	4	134	229	1.7
South Dakota	35	156	7	163	1,150	7.1
Southern California	69	434	24	458	3,406	7.4
Southwestern	105	310	24	334	795	2.4
Stanford	60	421	32	453	3,418	7.5
State University of New York, New York	151	1,162	82	1,244	9,716	7.8
State University of New York, Syracuse	76	713	35	748	6,424	8.6
Temple	130	1,538	83	1,621	11,524	7.1
Tennessee	205	353	25	378	957	2.5
Texas	164	411	29	440	1,010	2.3
Tufts	112	527	45	572	3,733	6.5
Tulane	137	806	41	847	5,742	6.8
Utah	55	270	13	283	1,798	6.4
Vanderbilt	54	652	32	684	5,371	7.9
Vermont	50	221	21	242	1,751	7.2
Virginia, Medical College of	84	305	16	321	1,779	5.5
Virginia, University of	76	384	17	401	2,844	7.1
Washington, St. Louis	87	1,057	52	1,109	8,129	7.3
Washington, University of	75	328	22	350	1,987	5.7
Wayne	75	272	24	296	872	2.9
Western Reserve	84	839	57	896	6,268	7.0
West Virginia	31	86	2	88	241	2.7
Wisconsin	82	151	16	167	455	2.7
Woman's Medical	51	2	157	159	834	5.2
Yale	79	603	45	648	5,221	8.1
Totals	7,549	44,905	2,663	47,568		

* Figures for the University of Miami (68, 135, 8, 143, 521, 3.6) are not included in above calculations. Data on Puerto Rico are not available.

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[11] Stalnaker, J. M., and Dykman, R. A.: The Study of Applicants, Association of American Medical Colleges, to be published.

some yearly variation, there has been a gradual increase so that the current graduating class is almost 50% larger than that of 25 years ago.

The third year class of 1954-1955 was slightly smaller than that of the preceding year, now the current graduating class. It is anticipated that the School of Medicine of Miami will be eligible for approval during the academic year 1955-1956 and its students and graduates incorporated in next year's report. Since the graduating class at Miami will not entirely compensate for the difference in size of these two classes, it can be predicted that next year's graduating class will probably be slightly smaller than the one for this year. However, because classes scheduled for graduation in subsequent years are somewhat larger and because of new schools in development, any decrease that does occur will be only an incident in a continuing expanding number of graduates in the years ahead.

Of this year's graduates, 88.6% held baccalaureate degrees at the time of graduation. As first year students, only 70% of the same class had this degree, so that approximately one-sixth of the class earned their college degrees partly on the basis of work completed in medical school.

TABLE 22.—*Students in the Required Intern Year in the United States, 1931-1955*

Yr.	No.	Yr.	No.
1930-1931	1,025	1943-1944	451
1931-1932	1,067	1944 (2nd session)	447
1932-1933	1,106	1944-1945	452
1933-1934	1,183	1945-1946	488
1934-1935	1,233	1946-1947 *	582
1935-1936	1,213	1947-1948	447
1936-1937	1,255	1948-1949	458
1937-1938	1,132	1949-1950	454
1938-1939	1,152	1950-1951	501
1939-1940	1,152	1951-1952	379
1940-1941	1,058	1952-1953	407
1941-1942	767	1953-1954	203
1942-1943	639	1954-1955	50

* Includes additional classes.

REQUIRED INTERN YEAR

The trend toward abandoning the internship as a requirement for graduation was brought out in last year's report and is illustrated in table 22. In 1954-1955 only Stanford continued to require an internship for graduation, and it has made the decision to eliminate this requirement and award the medical degree at the successful completion of four years of medical school study. Thus, after this year, there will be no students serving internships as a prerequisite to graduation.

Almost all new graduates continue to serve internships, and there is no indication that the elimination of this as a requirement of the medical schools for graduation has produced any trend away from the internship as a step in the medical education process.

STUDENT FEES

Fees for resident and nonresident students charged by each medical school are listed in table 1. During the year covered by this report, the average tuition fee for resident students was $646 and for nonresident students was $807. Comparable figures for last year were $633 and $722.

SCHOLARSHIP AND LOAN FUNDS IN UNITED STATES MEDICAL SCHOOLS

Seventy-one of the 81 medical schools in the United States have either student scholarship or loan funds, or both, available. Since the report of last year covering the 1953-1954 academic session, 10 schools have increased their total available scholarship funds by $108,200. Eleven schools have augmented loan funds by $202,330. Thus, for 1954-1955, 71 schools had a total of $1,151,760 available for student scholarships and $2,332,170 for loans.

Three of the schools received additional scholarship funds in excess of $20,000 for the year. One of the state university medical schools received additional loan funds of $100,000 for the year.

The Council on Rural Health of the American Medical Association has prepared a brochure on the medical scholarship and loan fund programs available only to the residents of the 17 sponsoring states including Alabama, Connecticut, Georgia, Idaho, Illinois, Iowa, Kansas, Kentucky, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Ohio, Pennsylvania, South Dakota, and Wisconsin. This brochure itemizes the scholarship and loan funds sponsored or administered by state and county medical societies, women's auxiliaries, joint medical society and state boards, and special organizations. It does not include medical school grants, state scholarships and loans not connected with medical societies, and private endowments.

What Happens to Medical School Graduates?

NEW STUDY BY BUREAU OF MEDICAL ECONOMIC RESEARCH

In connection with the tabulation of statistical data, the Bureau of Medical Economic Research of the American Medical Association has accumulated vast quantities of information of interest and value in the field of medical education. It maintains a continuous census of physicians on punch cards coextensive with the files of the Directory Department. That Department has great difficulty in keeping abreast of the changes in addresses and type of practice of American physicians. Some interns, for example, are not reclassified until many months after completing their internships because of their delay in notifying the Directory Department.

Last year the Bureau of Medical Economic Research published Bulletin 94, Distribution of Physicians by Medical Service Areas, as a result of its six year cooperative study with the state medical societies. It was necessary to relate all data to April, 1950, the effective date of the 1950 United States Census of Population, in computing population-physician ratios. Since the code numbers for the medical school and the year of graduation were punched into each of the 205,000 cards for the physicians living in the 48 states and the District of Columbia, the Bureau decided to sort the cards by school and prepare approximately 500 tables. In 7 of the 11 groups of tables there are 72 separate tables, one for each of the 72 schools approved at that time. This statistical study of the medical school alumni will be published in Bureau of Medical Economic Research

Publication M-94 in the fall of 1955. It will present for the first time a comprehensive picture of the distribution of the alumni of each of the 72 United States approved (as of April, 1950) four year medical schools and of the 72 schools as a group, by type of practice, by state, by size of city, and by year of graduation and some similar data for three groups of schools—other United States schools (184), the Canadian schools (13) and foreign schools (226). A follow-up study for 1956 is being planned, which will probably include additional data on specialization and data on the alumni of approved United States medical schools residing in Canada and the United States possessions, in addition to those residing in the states.

Table 23 is the first or basic table of this forthcoming study and is presented in this issue of THE JOURNAL to acquaint medical educators with the potentialities inherent in the report. The type-of-practice distributions by four groups of schools are shown in three parts. (Limitations on these type-of-practice data cannot be set forth herein, they will be described fully in the forthcoming Bureau publication.) Part A deals with numbers; part B with percentage distribution by school grouping; and part C with percentage distribution by type of practice. Of the 205,000 physicians, 164,409, or 80.2%, were graduates of the 72 United States approved four year schools, 13.2% were graduates of other United States schools, 2.0% of Canadian schools, and 4.6% of foreign schools. These four over-all percentages are the basic frame of reference for comparisons. (The 214 early graduates of some of the seven approved two year schools were included among the 27,066 total for other United States schools.) It is anticipated that the percentage for foreign schools will be higher in the 1956 survey.

Of the 76,158 general practitioners in April 1950, only 56,000, or 73.5%, were graduates of the 72 approved United States four year schools; of all physicians, less than 80.2% were graduates of the approved schools. On the other hand, the graduates of the other United States schools accounted for 18.8% of the general practitioners, but only 13.2% of the total physicians. (Some of the tables in the forthcoming Bureau of Medical Economic Research Publication M-94 will show that these graduates were older and less concentrated in the large cities.)

Similar comparisons can be made from the percentages in part B for the other types of practice. For example, the graduates of the 72 approved four year schools accounted for 84.2% of the full-time specialists, relatively more than the 80.2% of all physicians. The graduates of the Canadian schools accounted for a relatively larger proportion of full-time specialists, 2.4% versus 2.0% of all physicians, and a relatively small proportion of the general practitioners, 1.8% versus 2.0%. The pattern for the foreign school graduates in this regard follows somewhat the pattern of the graduates of other United States schools, namely, a relatively larger proportion of general practitioners, 5.9% versus 4.6%. Considerably above the over-all percentage of 80.2%, 88.1% of the full-time medical school staff members were graduates of the 72 approved United States four year schools. As might be expected, an inordinately high percentage, 34.6%, of the retired and not in practice group were graduates of other United States schools, a fact which indicates, of course, that many of them were in the higher age brackets.

TABLE 23.—*Type-of-Practice Distribution by School Groupings*

Type of Practice * (1)	Approved U.S. 4 Yr. Medical Schools (2)	Other U.S. Medical Schools (3)	Canadian Medical Schools (4)	Foreign Medical Schools (5)	Total (6)
A. Number					
1. General practitioners	56,000	14,278	1,381	4,499	76,158
2. Part-time specialists	18,341	3,261	451	1,207	23,260
3. Full-time specialists	48,022	5,057	1,398	2,557	57,034
1-2-3. Active private practice	(122,363)	(22,596)	(3,230)	(8,263)	(156,452)
4. Administration, research, industry, local government	813	108	41	52	1,014
5. Full-time medical school staff	1,558	84	51	76	1,769
6. Federal government	9,156	542	130	415	10,243
7. Retired and not in practice	6,366	3,604	215	237	10,422
8. Interns	8,612	12	117	42	8,783
9. Residents	15,541	120	336	310	16,307
Total physicians	164,409	27,066	4,120	9,395	205,000
B. Percentage Distribution by School Groupings					
1. General practitioners	73.5%	18.8%	1.8%	5.9%	100.0%
2. Part-time specialists	78.9	14.0	1.9	5.2	100.0
3. Full-time specialists	84.2	8.9	2.4	4.5	100.0
1-2-3. Active private practice	(78.2)	(14.4)	(2.1)	(5.3)	(100.0)
4. Administration, research, industry, local government	80.2	10.7	4.0	5.1	100.0
5. Full-time medical school staff	88.1	4.7	2.9	4.3	100.0
6. Federal government	89.4	5.3	1.3	4.0	100.0
7. Retired and not in practice	61.1	34.6	2.0	2.3	100.0
8. Interns	98.1	0.1	1.3	0.5	100.0
9. Residents	95.3	0.7	2.1	1.9	100.0
Total physicians	80.2	13.2	2.0	4.6	100.0
C. Percentage Distribution by Type of Practice					
1. General practitioners	34.1%	52.8%	33.5%	47.9%	37.2%
2. Part-time specialists	11.1	12.0	11.0	12.9	11.3
3. Full-time specialists	29.2	18.7	33.9	27.2	27.8
1-2-3. Active private practice	(74.4)	(83.5)	(78.4)	(88.0)	(76.3)
4. *Administration, research,* industry, local government	0.5	0.4	1.0	0.6	0.5
5. Full-time medical school staff	0.9	0.3	1.2	0.8	0.9
6. Federal government	5.6	2.0	3.2	4.4	5.0
7. Retired and not in practice	3.9	13 3	5.2	2.5	5.1
8. Interns	5.2	0.1	2.8	0.4	4.3
9. Residents	9.5	0.4	8.2	3.3	7.9
Total physicians	100.0	100.0	100.0	100.0	100.0

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* Definitions used in these nine classifications and limitations on the source data, particularly on interns and residents, are found in Bureau of Medical Economic Research Publication M-94.

In part C, 100.0% represents the total for the graduates of each of the four groups of schools with the percentage distribution of the four groups combined in the right-hand column. Of the total physicians, 37.2% were general practitioners, while of the alumni of the 72 United States approved four year schools 34.1% were general practitioners, as were 52.8% of the alumni of the other United States schools, 33.5% of the alumni of the Canadian schools, and 47.9% of the alumni of the foreign schools. An atypically low percentage (18.7% versus 27.8%) and an atypically high percentage (33.9% versus 27.8%) of the alumni of the other United States schools and Canadian schools respectively were full-time specialists.

The Bureau of Medical Economic Research indicated that further observation based on this single table would raise more questions than they could or would be able to answer. The forthcoming study Bureau of Medical Economic Research Publication M-94 will contain much information of interest to medical educators. The comparative data that is being prepared for each of the approved medical schools (as of April, 1950) will be of particular value. Only one copy will be available to each medical school, as only 100 copies will be planographed.

Medical Education and National Defense

CURRENT STATUS

The Joint Committee on Medical Education in Time of National Emergency, representing the Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges, has continued to collaborate as closely as possible with the Department of Defense, the armed forces, the Selective Service System, the Public Health Service, the Civil Administration, and other governmental agencies in considering problems created for medical education by the continuing defense needs of the nation.

The Council on Medical Education and Hospitals and the American Medical Association as well as the Association of American Medical Colleges supported the legislative proposals in regard to the development of medical military scholarships. The concept of medical military scholarships, however, has not received congressional support. Some members of Congress apparently favor the establishment of a military medical academy or school rather than the support of medical military scholarships, unless the latter involves a definite commitment for increased undergraduate student enrollment.

The program for medical education and national defense (MEND) has been given additional support and will be extended. A full-time national coordinator for the program has been appointed with offices maintained in the Bureau of Medicine and Surgery, Department of the Navy, Potomac Annex, Washington, D. C.

Following the two year pilot study program at the colleges of medicine of Cornell, Buffalo, Vanderbilt, Illinois, and the University of California at San Francisco, the MEND program has been extended to ten additional schools. This additional list includes Baylor, Colorado, Emory, Georgetown, Medical College of Virginia, Ohio State, Pennsylvania, Tufts, Washington at Seattle, and Wisconsin. Ten more schools are to be added in January, 1956.

MEND is a function of the Joint Committee on Medical Education in Time of National Emergency, representing the Council on *Medical Education and Hospitals* of the American Medical Association and the Association of American Medical Colleges. Its program has been endorsed by both parent organizations, as well as by the medical officials of the Department of Defense, Public Health Service, and Federal Civil Defense Administration.

The purpose of the program is to encourage the teaching of principles of military and disaster medicine by regular faculty members of the medical colleges. Nothing is mandatory, each faculty is free to accept or reject any part of the program not consistent with the local philosophy of medical education. All emphasis is on medical rather than military topics.

Features of the program include symposiums for the faculties of participating institutions sponsored by the MEND committee. During 1955-1956, a three day session on aviation physiology and medicine will be conducted by the Air Force at Randolph Field, Texas, in October. Later symposiums will include infectious diseases, chemical, biological, and radiological warfare defense, and surgery of trauma. Faculty members are offered opportunities to visit research installations of the federal services to learn of recent developments in military areas of activity.

SELECTIVE SERVICE SYSTEM AND DEFERMENT ELIGIBILITY

The responsibility for primary classification of registrants rests with selective service local boards. If a person or his employer (college, medical school, or hospital) has requested his deferment and he has been classified as available for military service, the person or his employer may, within ten days of the mailing of the notice of classification, file an appeal. If the State Appeal Board should sustain the classification, the registrant or his employer may, if there is a dissenting vote in the appeal board, file a written request with the local board to have the decision appealed to the National Selective Service Appeal Board. If there is no dissenting vote, the state or national director of selective service may appeal the case to the President.

The "college student certificate," SSS Form 109, continues to be prescribed for the use of institutions of higher learning, including those of medicine, in furnishing the local boards information regarding registrants who are enrolled as students in those institutions. These forms should be submitted to the local boards by the educational institution on request of the registrant. However, the mere filing of such a form does not constitute a request for occupational deferment, since, in order to establish the right of appeal as an interested party, a written request from the college or employer for occupational deferment must accompany the form. The registrant has the right of appeal if exercised in the prescribed ten days. He may make his appeal informally in writing.

ELIGIBILITY FOR CONSIDERATION FOR DEFERMENT

The law empowers the President to provide for the deferment of any person whose deferment is equitable and in the national interest. Furthermore, it is the sense of Congress that provision should be made for the annual deferment from training and service of premedical, pre-dental, and allied preprofessional students in numbers equal to those at present in attendance at colleges and universities as outlined in the general student deferment program. The President is also directed to establish a national advisory committee to advise the Selective Service System and assist state and local advisory boards in selecting the needed medical, dental, and allied personnel.

Sections 1622:15 and 1622:25 of the Selective Service Regulations specify the conditions under which students pursuing programs of higher education may be considered for deferment. Within these specified requirements, students of the healing arts are considered for deferment in the same manner as students pursuing other undergraduate or graduate courses at colleges, universities, and similar schools.

Any student not previously deferred who is pursuing a full-time course of study is entitled to a single period of statutory deferment, Class 1-S, until the end of the academic year. Such deferment does not preclude the possibility of later deferment in Class 2-S. Students whose activity in study, research, medical, or other endeavors is found necessary to maintenance of the national health, safety, or interest may be deferred in Class 2-S until completion of their training, provided they maintain satisfactory scholastic records. A student who is deferred for study extends his liability for military training and service up to his 35th birthday instead of his 26th as prescribed for registrants who have never enjoyed a deferment.

In selecting a student for deferment in Class 2-S, the Selective Service local boards may, at their discretion, be guided either by the score made by the student on the Selective Service College Qualification Test or by his record of academic performance.

The College Qualification Test is given for the Selective Service System by the Science Research Associates, Inc., of Chicago. At present, in order to be eligible for deferment on the basis of this test, an undergraduate student must make a score of 70 or more. SSS Form 108 has been prescribed for furnishing to the local board the score made on this test. This score is confidential and may be divulged by the local board only to the registrant or one holding his written consent.

To qualify for deferment on the basis of academic performance, the nonprofessional student must have maintained the following standing among the male members of his class; freshman year, upper one-half; sophomore year, upper two-thirds; junior year, upper three-fourths.

A student accepted for admission to medical school after July 1, 1951, for the class next commencing may be deferred provided that, during his last full-time year at a college or university, he was ranked among the upper one-half of the male members of his class or had a score of 70 or more on the Selective Service College Qualification Test.

A student accepted for admission by a graduate school after July 1, 1951, as a full-time student for the class next commencing may be deferred provided in his last full-time academic year in a college or university he achieved a scholarship standing among the upper one-half of the male members of his class or scored 75 or more on the qualification test and provided the graduate school certifies that he is meeting the degree requirements.

Decisions concerning deferment of American students enrolled in foreign universities, including medical students, are the responsibility of the local boards. The local board may accept or reject any claims or evidence presented for deferment.

STATUS OF INTERNS AND RESIDENTS

The Selective Service System has always recommended the deferment of graduates of medicine to complete one year of internship training. Recently, and in order to prevent calling up men of priority 3 who are in the higher age brackets, Selective Service has stated that men to be given favorable consideration for deferment to complete a residency or more than one year of internship, should be absolutely essential to the operation or maintenance of the hospitals where they are employed. Selective Service is of the opinion that there is a sufficient number of priority 4 young men to fill the needs of hospitals for residents.

For the fiscal year 1956 (July 1, 1955-June 30, 1956), the National Advisory Committee to the Selective Service System has agreed to request that local boards defer 300 men who finish their internships on or about June 30, 1955, for the purpose of residency training in some specialty. These 300 men are all to be commissioned in the reserve component of one of the armed forces, and they are to be selected by the Assistant Secretary of Defense (Health and Medical) for such training. The request for deferment is to pass from the individual to the Assistant Secretary of Defense (Health and Medical) and then, if recommended, will be forwarded through national headquarters of the Selective Service System to the respective local boards of that system. This program may be continued in subsequent years. The number of such requested deferments is to be determined year by year.

The National Advisory Committee to the Selective Service System has indicated that all physicians in priority 1 and priority 2 and those in priority 3 born after August 30, 1922, will be needed by the armed forces and has advised that they apply for commissions about the time of completion of their internships. A few persons in these categories may be recommended for deferment by the Selective Service local boards for teaching, research, or public health or because they are rendering essential service in isolated communities and cannot be replaced.

In addition, the only persons in this group who can justifiably be recommended for deferment are those who are accepted for training in the scarcity specialties and whose services are required to meet the essential needs of medical and dental schools or hospital services. The specialties in which critical shortages exist are anesthesiology, physical medicine and rehabilitation, psychiatry, radiology, neurology, pathology, public health, orthopedic surgery, oral surgery, and the basic medical sciences. Those few persons in these groups for whom deferment is necessary may be deferred in Class 2-A by the Selective Service local boards. The recommendation of the advisory groups in all such cases is desirable.

STATUS OF FACULTY MEMBERS

Since the majority of the faculty members of medical schools are under 50 years of age, they are required to register with the Selective Service System as indicated under Public Law 779. No policy has been announced by the Selective Service System on the granting of deferment to faculty members, except that recently teachers of medicine have been mentioned in a Selective Service operations bulletin as being in a critical occupation to which local boards should give special consideration. The National Advisory Committee has recommended that, as a general policy, essential members of medical, dental, and veterinary faculties be held in their teaching positions until such time as replacements are found. This recommendation applies especially to persons in the basic sciences departments and includes persons in priorities 1 and 2. This policy is not a blanket recommendation for deferment from military service for all teachers. Part-time teachers, who devote only a small portion of their time to teaching, and certain of the younger full-time teachers in priorities 1 and 2 will be expected to enter the military services.

CURRENT STATUS OF THE "DOCTOR-DRAFT" LAW

The "Doctor-Draft" law was first approved Sept. 9, 1950, as Public Law 779, 81st Congress, an amendment to the Universal Military Training and Service Act. It has subsequently been amended by Public Law 84, 83rd Congress, approved June 19, 1953; Public Law 403, 83rd Congress, approved June 18, 1954; and Public Law 118, 84th Congress, approved June 30, 1955. These amendments, which have been included as Section 4(i) of the Universal Military Training and Service Act, are known as the "Doctor-Draft" law.

The effective date of the Universal Military Training and Service Act, as now amended, is extended to July 1, 1959, while that part pertaining to the registration and induction of physicians, dentists, and allied specialists ("Doctor-Draft" law) is extended to July 1, 1957. No change was made in the age limit prescribed in the previous amendments which required that all physicians, dentists, and allied specialists under the age of 50 must register with the Selective Service System local boards when required to do so by the proclamation of the President. Therefore, all new medical graduates under the age of 50 must register with their Selective Service local boards as physicians, regardless of any previous registration, within five days of the receipt of the Degree of Doctor of Medicine, provided they do not hold a commission in an armed forces reserve component. However, Public Law 118, of the 84th Congress, did relieve any physician who had attained the 46th anniversary of his birth from liability of induction. When the degree is not granted by the school until completion of an internship, this special registration is accordingly deferred.

As under previous provisions of the act, registrants will be arranged in four priorities signifying the order of induction. However, the criteria for such an arrangement under these priorities have been modified. The major changes enacted by the new amendments are those which provide for greater recognition of prior military service. A registrant will now receive credit for all service performed as either an officer or enlisted man since Sept. 16, 1940, regardless of whether it was before or after participation in an AST or V-12 program, or deferment by the Selective Service System for professional education prior to March 31, 1947. Also, recognition is given for military service performed in the armed services of a country allied with the United States prior to Sept. 2, 1945, while so allied.

Whereas, formerly physicians who were educated in part or in whole at government expense or were deferred by the Selective Service System while completing their professional education needed 21 months of service to qualify for assignment in priority 4, they now need only 17 months. As a result of this change, a number of physicians formerly in priorities 1 and 2 have been reassigned in priority 4. The periods of service for men called to active duty or inducted under the new law were also revised. Those with 9 months or less of service must serve 24 months. Those with 9 to 12 months will serve 21 months. Those with 12 to 15 months' service will serve 18 months, and those with 15 to 21 months will serve 15 months. Those physicians in priority 4 who have had 21 months or more of service since Sept. 16, 1940, are not liable to induction or recall, except in time of war or national emergency declared by Congress.

"Active service" and "active duty" are defined as full-time duty since Sept. 16, 1940, in the service of the United States Army, Navy, Air Force, Marine Corps, Coast Guard, or Public Health Service, including reserve components; time spent during World War II by conscientious objectors in work of national importance; service performed before Sept. 2, 1945, in the armed forces of countries that were allies of the United States during World War II; and service performed as a physician or dentist for the Panama Canal Health Department between Sept. 16, 1940, and Sept. 2, 1945.

Specifically excluded from consideration as "active service" is time spent in V-12 or AST programs in military internships, residencies, or senior student programs, time spent in military service for the sole purpose of undergoing physical examination, and training entered into after June 29, 1953. The law continues to permit deferment of those persons whose activities are essential to the national health, safety, or interest.

It is the duty of the National Advisory Committee and the voluntary state and local committees of the Selective Service System to make recommendations to the Selective Service System concerning the essentiality or availability of special registrants who are being classified by their local boards. This duty includes recommendations concerning residents, faculty members, and those engaged in essential laboratory and clinical research.

Public Law 403, approved June 18, 1954, amended the so-called "Doctor-Draft" law and makes it possible for the armed forces to return to duty, but in enlisted status, persons serving under the "Doctor-Draft" law whose loyalty is questioned or for security reasons. This amendment, therefore, removed the mandatory requirement of Public Law 84 that physicians and dentists be given commissions.

The latest amendment, Public Law 118, 84th Congress, provides that if any physician special registrant, after attaining the 35th anniversary of the date of his birth, applies or has applied for a commission in one of the armed forces as such and is or has been rejected for commission on the sole grounds of physical disqualification, he is not liable for induction.

Role of Medical Schools in Graduate and Continuation Education

As knowledge in the field of science applicable to teaching, research, and the practice of medicine continues to increase with accelerating rapidity the potential role of medical schools in the field of continuation education becomes more apparent and more important. Many years ago John Chalmers De Costa wrote to the effect that: "Each one of us, however old, is still an undergraduate in the school of experience. When a man thinks he has graduated he becomes a public menace." In the dynamic field of medicine no individual who teaches or practices can ever cease seeking further knowledge, learning new techniques, and developing the wisdom to utilize them effectively.

Over the past several years the Council on Medical Education and Hospitals has endeavored to assist physicians in their search for opportunities in continuation education through the semiannual listing of courses, clinics, and other activities planned and scheduled by medical schools, hospitals, medical societies, specialty organizations, and clinics. Beginning this year the list will be an annual presentation covering the period from Sept. 1 to Aug. 31 of the succeeding year. The first annual listing appeared in the July 23, 1955, issue of THE JOURNAL. Supplementary listings will appear from time to time, the first one represented by table 24 in this publication.

All medical schools conducting programs of undergraduate medical education are also naturally involved in graduate medical education through either direct administrative responsibility or through activities of their faculty personnel in the planning and supervision of graduate students, interns, and residents. This area of medical school responsibility has steadily increased over the years. In many institutions undergraduate and graduate medical education are intimately interwoven. Faculty, interns, and residents participate in the supervision of student clinical clerks, and in some institutions the latter are considered to be junior components of the medical team as they conduct their clinical assignments.

INTERNSHIPS AND RESIDENCIES

In the current list of approved internships and residencies in THE JOURNAL (Sept. 24, 1955) an analysis was made of internships based on the participation of the hospital in undergraduate medical education. This is summarized in table 25. It was indicated that 213 hospitals approved for internships (25% of the 850 so approved) were designated as either major (140) or minor (73) teaching hospitals in their medical school relationship. The 140 major teaching hospitals offered 4,017 (36%) of the total approved internships (11,048) and the 73 minor teaching affiliations accounted for 849 (7.7%). Thus 43.7% of all of the approved internships were in institutions affiliated with medical schools where faculty personnel were directly involved in the supervision and conduct of training programs. Eighty-five per cent of the internships in major teaching hospitals, 81% of those in minor teaching hospitals, and 80% of approved internships in nonaffiliated hospitals were filled last year.

The current list of approved internships and residencies indicates that in 1954-1955 there were 25,486 residencies available at all levels, of which 20,494 (80%) were filled. An exact analysis of the number of residents in medical school affiliated hospitals as compared to those in nonaffiliated institutions is not available. However, it is fair to assume that medical school faculty personnel carry a heavy load of responsibility for planning and supervising graduate medical education at the residency level.

INCREASING INTEREST IN THE INTERNSHIP

During recent years increasing attention has been centered on the internship by members of the medical profession and hospital administrators as well as by medical educators. On several occasions the House of Delegates of the American Medical Association has appointed special committees to study the internship. The most recent of these committees was the Ad Hoc Committee, which after thorough study reported its findings and recommendations to the House of Delegates during the past year (December, 1954, and June, 1955). This committee clearly upheld the primary educational function of the internship in its final recommendations. At the June, 1955, meeting of the House of Delegates of the American Medical Association, two resolutions were approved which publicly recorded professional support of the educational objective of the internship. One of these resolutions is of such general importance as an expression of professional opinion as to the nature of the internship that it is recorded, herewith:

> WHEREAS, Different ideas concerning the purpose of the internship have led to confusion as to what should be its proper content of experience and its proper place in the field of hospital organization and in the general scheme of medical education; and
>
> WHEREAS, It seems desirable that the medical profession through action of the House of Delegates, should take clarifying action to establish publicly its attitude toward these matters;
>
> THEREFORE BE IT
>
> *Resolved*, It is the sense of the House of Delegates that the following principles be given general recognition:
>
> First, that the internship in fact combines two functions, (1) as an educational period in the training of young physicians and (2) as a position rendering medical care and service to patients in hospitals and assistance to the staffs of the hospitals.

TABLE 24.—*Postgraduate Courses for Physicians*

(Supplemental listing to compilation of Postgraduate and Graduate Courses for Physicians published in THE JOURNAL, July 23, 1955, pp. 1052-1131.)

Type	Designed for	Time Arrangements
R—Refresher	G—General Practitioners	C—Concentrated, full time
S—Special	S—Specialists	I—Intermittent
	B—All Physicians	

Postgraduate Instruction for Physicians—Sept. 1, 1955, to Aug. 31, 1956

Course Code No.	Title of Course	Location of Course	Type	Designed for	Total Hours	Methods of Instruction	Starting Date	Time Arrangements	Fee in Dollars
ANESTHESIOLOGY									
P 04114	Short Course in Anaesthesia,[1, 2, 3]	Victoria General Hospital Tower Road Halifax, Nova Scotia	R	G	26	Clinical case work Lecture or panel	2/27/56	C; 4 days	20
CARDIOVASCULAR DISEASE									
P 04546	Electrocardiography [3]	University of California School of Medicine Los Angeles	R	G	15	Lecture or panel	3/29/56	C; 15 hr.	50
DERMATOLOGY									
P 02939	Dermatology in General Practice [3, 16]	University of California School of Medicine Los Angeles	R	G	12	Clinical case work Lecture or panel	11/ 9/55	I; 2 hr. weekly for 6 wk. Wednesdays	30
P 02940	Dermatology in General Practice [3, 20]	University of California School of Medicine Los Angeles	R	G	12	Clinical case work Lecture or panel	2/15/56	I; 2 hr. weekly for 6 wk. Wednesdays	30
P 04417	Symposium in Dermatology [1, 2, 3]	Victoria General Hospital Tower Road Halifax, Nova Scotia	R	G	13	Lecture or panel	4/9/56	C; 2 days	10
GENERAL MEDICINE									
P 02933	Aviation Medicine	University of California School of Medicine Los Angeles	S	G	21	Lecture or panel	10/25/55	C; 3 days	50
P 02122	Medicine for Today [3, 27, 28]	St. James Hospital Chicago Heights, Ill.	R	G	24	Lecture or panel	10/ 4/55	I; 2 hr. weekly for 12 wk. Tuesdays	40
P 02123	Medicine for Today [3, 27, 28]	Wabash General Hospital Mt. Carmel, Ill.	R	G	24	Lecture or panel	10/ 6/55	I; 2 hr. weekly for 12 wk. Thursdays	40
P 03722	Recent Advances in General Medicine [3, 21, 22]	University of Cincinnati College of Medicine Eden and Bethesda Aves. Cincinnati 19	R	G	12	Lecture or panel	10/ 6/55	I; 3 hr. weekly for 4 wk. Thursdays	10
P 03723	Rehabilitation in Chronic Diseases [3, 21, 22]	Sheltering Oaks 408 Union St. Cincinnati	R	G	5	Lecture or panel	11/27/55	C; 5 hr.	10
P 05022	Bridgewater Regional Course [1, 3, 7]	Selected center in Bridgewater, Nova Scotia	R	G	15	Lecture or panel Demonstration	11/55	I; 3 hr. weekly for 5 wk. Fridays	10
P 04024	Kentville Regional Course [1, 3, 7]	Selected center in Kentville, Nova Scotia	R	G	18	Lecture or panel Demonstration	3/56	I; 3 hr. weekly for 6 wk. Wednesdays	10
P 05025	New Glasgow Regional Course [1, 3, 7]	Selected center in New Glasgow, Nova Scotia	R	G	15	Lecture or panel Demonstration	4/56	I; 3 hr. weekly for 5 wk. Fridays	10
GYNECOLOGY									
P 04413	Week in Obstetrics, Gynecology and Pediatrics [1, 3, 5, 6]	Victoria General Hospital Halifax, Nova Scotia Grace Maternity Hospital Halifax, Nova Scotia Children's Hospital Halifax, Nova Scotia	R	G	31	Clinical case work Operative surgery	11/21/55	C; 5 days	25
P 05027	Short Course in Obstetrics and Gynecology [1]	Selected center in Nova Scotia	R	G	Unknown	Unknown	5/17/56	C; 2 days	Unknown
INDUSTRIAL MEDICINE									
P 02773	Application of Principles of Industrial Medicine to Private	University of California School of	S	G	18	Lecture or panel	10/19/55	I; 2 hr. weekly for wk. Wednesdays	60

			INTERNAL MEDICINE						
P 03828	Physiological Basis of Internal Medicine [3,11,12,13]	Duke University School of Medicine Durham, N. C.	S	S	10	Lecture or panel	10/10/55	C; 5 days	30 to members
P 01110	Week in Medicine [1,2,3,4]	Victoria General Hospital Tower Road Halifax, Nova Scotia	R	G	31	Clinical case work Lecture or panel	3/26/56	C; 5 days	25
			MALIGNANT DISEASE						
P 02488	Midwest Cancer Conference [8,9,10]	Hotel Broadview Wichita, Kan.	R	B	15	Lecture or panel Demonstration	3/22/56	Specially arranged	Nil
			NEUROLOGY						
P 03724	Neuro-Psychiatry [3,21,22]	Hotel Gibson Cincinnati	R	G	4	Lecture or panel	1/22/56	C; 4 hr.	10
			OBSTETRICS						
P 01966	Obstetrics [3,17]	University of California Riverside Campus Riverside, Calif.	R	G	6	Lecture or panel	10/ 5/55	C; 1 day	17.50
P 04413	Week in Obstetrics, Gynecology and Pediatrics [1,3,5,6]	Victoria General Hospital Halifax, Nova Scotia Grace Maternity Hospital Halifax, Nova Scotia Children's Hospital Halifax, Nova Scotia	R	G	31	Clinical case work Operative Surgery	11/21/55	C; 5 days	25
P 05027	Short Course in Obstetrics and Gynecology [1]	Selected center in Nova Scotia	R	G	Unknown	Unknown	5/17/56	C; 2 days	Unknown
			OPHTHALMOLOGY						
P 01305	Postgraduate Series in Ophthalmology	Yale University School of Medicine 333 Cedar St. New Haven, Conn.	R	S	10	Lecture or panel	11/18/55	I; 1 hr. every 2 wk. for 5 mo. Fridays	15
P 03799	Postgraduate Convention of the Oregon Academy of Ophthalmology and Otolaryngology	University of Oregon Medical School 3181 S.W. Sam Jackson Park Rd. Portland 1, Ore.	R	B	15	Lecture or panel Demonstration	3/19/56	C; 2½ days	85
P 03800	Postgraduate Convention of the Oregon Academy of Ophthalmology and Otolaryngology	University of Oregon Medical School 3181 S.W. Sam Jackson Park Rd. Portland 1, Ore.	R	B	15	Lecture or panel Demonstration	3/23/56	C; 2½ days	85
P 04283	Virginia Society of Ophthalmology and Otolaryngology—Clinical Session [3,24,25,26]	Medical College of Virginia Box 25, 1200 E. Broad St. Richmond 19, Va.	R	B	32	Lecture or panel	11/29/55	C; 4 days	35
			OTOLARYNGOLOGY						
P 03729	Twentieth Annual Graduate Convention in Otology, Rhinology, and Laryngology [23]	University of Cincinnati College of Medicine Eden and Bethesda Aves. Cincinnati 19	S	S	45	Laboratory work Operative surgery	4/16/56	C; 5½ days	150
P 03799	Postgraduate Convention of the Oregon Academy of Ophthalmology and Otolaryngology	University of Oregon Medical School 3181 S.W. Sam Jackson Park Rd. Portland 1, Ore.	R	B	15	Lecture or panel	3/19/56	C; 2½ days	85
P 04283	Virginia Society of Ophthalmology and Otolaryngology—Clinical Session [3,24,25,26]	Medical College of Virginia Box 25, 1200 E. Broad St. Richmond 19, Va.	R	B	32	Lecture or panel	11/29/55	C; 4 days	35
			PATHOLOGY						
P 04545	General Surgical Pathology [3]	University of California School of Medicine Los Angeles	R	G	36	Laboratory work Lecture or panel	11/12/55	I; 4 hr. weekly for 9 wk. Saturdays	80
			PEDIATRICS						
P 02935	Pediatrics [3]	University of California School of Medicine Los Angeles	R	G	15	Lecture or panel	10/27/55	C; 3 days	50
P 04413	Week in Obstetrics, Gynecology and Pediatrics [1,3,5,6]	Victoria General Hospital Halifax, Nova Scotia Grace Maternity Hospital Halifax, Nova Scotia Children's Hospital Halifax, Nova Scotia	R	G	31	Clinical case work Operative surgery	11/21/55	C; 5 days	25
P 05023	Short Course in Pediatrics [1]	Selected center in Nova Scotia	R	G	Unknown	Unknown	5/11/56	C; 3 days	Unknown

TABLE 24.—*Postgraduate Courses for Physicians*—Continued

Course Code No.	Title of Course	Location of Course	Type	Designed for	Total Hours	Methods of Instruction	Starting Date	Time Arrangements	Fee in Dollars
			PHYSIOLOGY						
P 01550	Pathological Physiology [3, 14]	University of California School of Medicine Los Angeles	R	G	21	Lecture or panel Demonstrations	2/20/56	I; 2 hr. weekly for 12 wk. Mondays	50
			PSYCHIATRY						
P 01554	Treatment of Emotional Problems in Office Practice—Basic Course [3, 14]	University of California School of Medicine Los Angeles	R	G	20	Small group discussion Lecture or panel	2/ 9/56	I; 2 hr. weekly for 10 wk. Thursdays	50
P 01381	Advanced Psychiatric Case Seminar [3, 16]	University of California School of Medicine Los Angeles	S	S	16	Small group discussion Lecture or panel	3/ 6/56	I; 2 hr. weekly for 8 wk. Tuesdays	60
P 05011	Psychiatric Problems in Medical Practice	North Shore Health Resort 225 Sheridan Rd. Winnetka, Ill.	S	B	18	Lecture or panel	10/ 5/55	I; 2 hr. monthly for 9 mo. Wednesday evenings	Nil
P 05026	*Short Course in Psychiatry* [1]	*Selected center in Nova Scotia*	R	G	Unknown	Unknown	1/30/56	C; 3 days	Unknown
			RADIOLOGY						
P 02934	Radioisotopes [3, 17]	Selected center in San Diego, Calif.	R	G	6	Lecture or panel	10/26/55	C; 1 day	17.50
			SURGERY						
P 02937	Surgery of the Hand [3, 17]	Selected center in San Diego, Calif.	R	G	6	Lecture or panel	11/ 2/55	C; 6 hr.	17.50
P 01378	Plastic Repair of Superficial Wounds [3, 17, 18]	Selected center in San Diego, Calif.	R	G	4	Lecture or panel	11/ 9/55	C; ½ day	17.50
P 02368	Burns [3, 17, 18]	Selected center in San Diego, Calif.	R	G	4	Lecture or panel	11/ 9/55	C; ½ day	17.50
P 04551	Removal of Foreign Bodies from Lung and Bronchi [3, 15]	University of California School of Medicine Los Angeles	S	S	10	Laboratory work Operative surgery	1/13/56	C; 1½ days	80
P 04553	Surgery of Trauma [3, 14]	University of California School of Medicine Los Angeles	R	G	15	Operative surgery Small group discussion	1/16/56	C; 2½ days	75
P 04552	Recent Advances in General Surgery [4]	University of California School of Medicine Los Angeles	R	G	21	Lecture or panel	3/ 7/56	I; 2 hr. weekly for 12 wk. Wednesdays	50
P 04517	Surgery of the Temporal Bone [19]	University of California School of Medicine Los Angeles	S	S	10½	Operative surgery Small group discussion	3/29/56	I; 3½ hr. for 3 days Thursday, Friday, and Saturday	100
P 03725	Minor Surgery in General Practice [3, 21, 22]	University of Cincinnati College of Medicine Eden and Bethesda Aves. Cincinnati 19	R	G	5	Lecture or panel	3/ 4/56	C; 5 hr.	10
P 04415	Week in Surgery [1, 2, 3]	Victoria General Hospital Halifax, Nova Scotia Camp Hill Hospital Halifax, Nova Scotia Children's Hospital Halifax, Nova Scotia	R	G	35	Clinical case work Lecture or panel	4/23/56	C; 5 days	25
			OTHER						
P 04518	Photomicrography [3, 16]	University of California School of Medicine Los Angeles	R	G	12	Laboratory work Lecture or panel	2/15/56	I; 2 hr. weekly for 6 wk. Wednesdays	30

REFERENCES

Address for Inquiries

1. Dalhousie University Faculty of Medicine, Morris St., Halifax, Nova Scotia.

8. American Cancer Society, Kansas Division, 821 Tyler St., Topeka, Kan.

11. The American College of Physicians, 4200 Pine St., Philadelphia 4.

17. University of California School of Medicine, Los Angeles.

21. G. B. Hannah, M.D., Secretary, Education Committee, Southwestern Ohio Society of General Physicians, Sharon and Willow Aves., Glendale, Ohio.

24. Dr. Peter N. Pastore, Box 25, M.C.V. Station, 1200 E. Broad St., Richmond 19, Va.

27. Illinois Academy of General Practice, 14 E. Jackson Blvd., Chicago 4.

Enrollment

	Minimum	Maximum
2.	3	24
6.	3	6
7.	6	35
10.	275	..
12.	50	100
14.	..	25
15.	..	12
16.	..	20
19.	..	10
20.	..	30
23.	22	22
25.	75	100
28.	30	..

Co-Sponsors

9. Kansas Medical Society, Topeka, Kan., and Sedgwick County Medical Society, Wichita, Kan.

Miscellaneous

3. Certificate given.

4. Neurology, Rheumatology, and Physical Medicine and Rehabilitation featured.

5. Of the 31 hours, 11½ are Pediatrics.

13. Fee for members $30; nonmembers $60.

18. Combined session—P-01378 (Plastic Repair of Superficial Wounds) held in afternoon; P-02368 (Burns) held in morning. Fee for entire day $17.50.

22. $10 for one seminar; $25 for four seminars (members).

20. Four day course, two days Ophthalmology and two days Otolaryngology; fee $20 for half, $35 for all.

Second, that its educational function is of primary and paramount importance and that its service function is secondary and incidental.

Third, that its educational function should be recognized as possessing a character of its own and should not be regarded as an additional year of medical school nor as the first year of a narrowly specialized professional career.

Fourth, the internship should be so organized and administered that it emphasizes the beginning and the progressive increase of the assumption of personal responsibility for the care of the sick, the recognition and cultivation of the personal aspects of the treatment of patients, including family, social, financial, and morale factors, and the learning and acceptance from firsthand experience of the Principles of Medical Ethics and the code of professional conduct.

Fifth, that the service function of the intern, valuable as it is to the hospital, its staff, and its patients, should not be permitted to subordinate the educational purpose of the internship.

Sixth, that hospitals unable or unwilling for any reason to conduct internships meeting the educational standards of the Council on Medical Education and Hospitals in the spirit of the foregoing statements should not be encouraged to establish internships and such internships should not be approved. These hospitals should seek to meet their service needs by establishing house officer positions with adequate salary provisions.

Seventh, that all hospitals university connected and nonuniversity affiliated should be subject to these guiding principles.

The internship promises to continue to challenge medical educators, hospital administrators, and attending professional staff members in the years ahead. There is a widespread impression that the first year of hospital experience following graduation from medical school should be a well-planned rotating or mixed type of program rather than in any single field. There are those, however, who feel that a so-called straight internship if properly organized is satisfactory for the individual who clearly has decided his future area of interest. The value of any internship program will depend largely upon the basic planning underlying it, the continuity of integrated experience it affords, and the supervision it receives from responsible leadership. All medical schools have a "stake" in the internship and in its future as part of medical education.

GRADUATE EDUCATION TOWARD HIGHER DEGREES

Table 10, which portrays the over-all teaching responsibilities of medical schools in addition to the education of undergraduate medical students, indicates that many of the institutions are actively engaged in teaching and supervising graduate students specializing in various basic medical sciences and clinical areas. This is a highly important facet of medical school activity, for it is the students who elect to enter such work who largely constitute the reservoir of future teachers and investigators. Twenty-three medical schools in the United States report 772 physicians seeking M.S. degrees in 1954-1955, and 7 Canadian schools report 17 for the same period. Sixteen schools in the United States enrolled 182 physicians conducting graduate work toward the Ph.D. degree, and three Canadian institutions reported 10 such graduate physicians. Sixty-six schools in the United States reported 1,024, and seven Canadian institutions reported 38 graduate students other than physicians working toward master's degrees in basic medical sciences. Fifty-six schools in the United States reported 983, and nine in Canada reported 57 graduate students other than physicians enrolled in programs leading to Ph.D. degrees in the basic medical sciences.

GRADUATE TRAINING PROGRAMS DESIGNED FOR PROSPECTIVE GENERAL PRACTITIONERS

The medical school questionnaire this year included an inquiry in regard to the sponsorship of programs designed specifically for prospective general practitioners. Five institutions replied that internships were designed for this purpose, and eight indicated that they had aided in developing residency programs in general practice. The internships varied from one to two years in length and residencies from one to three years. Ten schools indicated that they were conducting courses, conferences, or clinics specifically designed for general practitioners. These programs were in addition to undergraduate preceptorships designed to offer medical students an opportunity to have a firsthand contact with the field of general or family practice.

TABLE 25.—*Number of Internships by Medical School Affiliation and Bed Capacity, 1954-1955*

		No. of Internships		
Classification	No. of Approved Hospitals	Filled Sept. 1, 1954	Vacant Sept. 1, 1954	Percentage Filled
Nonaffiliated				
Less than 200 beds.......	169	707	209	77
200-299	249	1,518	489	76
300-499	168	1,717	389	81
500-over	51	993	130	89
Totals................	637	4,965	1,217	80
Major teaching				
Less than 200 beds.......	11	97	14	87
200-299	19	174	37	82
300-499	46	776	156	83
500-over	64	2,364	390	86
Totals................	140	3,411	606	85
Minor teaching				
Less than 200 beds.......	18	71	38	65
200-299	21	123	56	68
300-499	26	303	48	86
500-over	8	193	17	92
Totals................	73	690	159	81
Grand totals.....	850	9,066	1,982	82

Medical schools and hospitals have demonstrated magnificent leadership in developing excellent programs in graduate education for the specialty areas in recent years. On Sept. 1, 1954, there were 155 hospitals conducting approved graduate training programs in general practice. There were 404 assistant residents or residents participating in these programs. Many individuals among the medical profession, medical educators, and the general public believe that a very real challenge confronts medical education in this field. It is believed by many that there is need for a modern definition of what should constitute general or family practice as it confronts the young physician of today. If this can be accomplished there is need for cooperative planning on the part of medical schools, hospitals, and professional organizations in the formulation and implementation of graduate programs designed to furnish the background essential for the physician planning to enter this field. The broad challenges and needs for preparation in the field of general or family practice have, in the opinion of many thoughtful individuals, been allowed to go by default as those in the narrower specialty areas have received greater attention.

TABLE 26.—*Postgraduate Courses Offered and Attendance, 1945-1955*

Yr.	Short Courses of Less Than Five Days' Duration		Long Courses of Five or More Days' Duration		Miscellaneous Clinical Conferences, Graduate Assemblies, Study and Circuit Courses, and Seminars		Total Courses and Attendance	
	Total Courses	Attendance	Total Courses	Attendance	Total Courses	Attendance	Total Courses	Attendance
1945-1946	154	4,140	1,070	19,991	52	21,824	1,276	45,955
1946-1947	239	16,274	1,291	23,062	21	20,475	1,551	59,811
1947-1948	496	31,569	1,279	24,878	25	26,356	1,800	82,803
1948-1949	304	16,821	1,074	28,507	67	38,058	1,445	83,386
1949-1950	161	10,523	1,080	24,087	129	40,708	1,370	75,318
1950-1951	420	7,438	1,067	14,890	79	23,855	1,566	46,183
1951-1952	206	7,454	1,543	17,511	120	40,970	1,869	65,935
1952-1953	324	9,452	805	23,793	253	31,363	1,382	64,608
1953-1954	343	14,212	1,185	16,908	156	45,897	1,684	77,017
1954-1955	260	35,398	1,162	21,621	297	48,447	1,719	105,466
Totals	2,907	153,281	11,556	215,248	1,199	337,953	15,662	706,482

POSTGRADUATE MEDICAL EDUCATION

As has been pointed out in the recently completed Survey of Postgraduate Medical Education,[12] which was conducted by the American Medical Association under the auspices of the Council on Medical Education and Hospitals, postgraduate medical education has come to be looked upon as one of the three basic phases of medical education. However, the formalization of postgraduate education has proceeded slowly and somewhat haphazardly during the period when the undergraduate and graduate phases were making rapid strides. The survey clearly indicated that physicians have already recognized the importance of formal postgraduate study, as is evidenced by the fact that they prefer it above all other methods, except the reading of literature, for continuing education.

Approximately 70 undergraduate medical schools in the United States offered or participated in postgraduate medical courses during 1952-1953. The survey reports that they offered nearly 50,000 hours of postgraduate instruction, or about one-third of the nation's total. Physicians responding to the survey questionnaire ranked postgraduate courses offered by medical schools as highest in quality. An overwhelming majority of individuals interviewed during the course of the survey both inside and outside of medical schools expressed the belief that postgraduate medical education is a basic responsibility of the medical schools.

Increasing interest in and need for postgraduate medical educational opportunities will almost inevitably lead to continued greater responsibility for, and participation in, such activities on the part of the medical schools. Their leadership in cooperation with medical societies, hospitals, and the various agencies interested in postgraduate medical education is essential to the future orderly progress of continuing education in this field. Budget, faculty, and facilities for such activities present additional problems to medical administrators that can be evaluated only after careful analysis as to the area needs and type of postgraduate activities in which any given institution should engage. It would seem that the entire area of postgraduate medical education offers outstanding opportunities for regional and institutional cooperation, if maximum potentialities are to be achieved. Currently, in the absence of any effective regional or interinstitutional planning, much needless duplication of effort continues to take place.

The survey concludes that if duplication of effort is to be avoided there is need for the many and varied groups and organizations engaged in postgraduate medical education in any given area to combine their resources in a coordinated program. Neither physicians nor instructors respect state boundaries in their participation in postgraduate medical education and regional coordination would seem a logical approach.

Table 26 summarizes the listed offerings of postgraduate courses and their attendance over the 10 year period from 1945 to 1955. Courses have been divided into short (less than five days' duration), long (five days or more in duration), and miscellaneous (conferences, assemblies, study, circuit courses, and seminars). It is of more than passing interest to note that the drop in course offerings and in attendance in 1950-1951 was not sustained, and that 1954-1955 witnessed the largest recorded attendance to date (105,466), although total course offerings were fewer than in 1947-1948 or in 1951-1952. It should be clearly indicated that there is no way in which the exact total number of physicians in attendance at postgraduate courses can be determined. The total number of registrants includes many individuals who have attended two or more courses during the year. The increasing total registration, however, is indicative of the interest in this area of continuing education on the part of the medical profession.

Forty-nine of the medical schools in the United States and six of those in Canada conducted postgraduate courses during 1954-1955. They reported a total registration of 21,131 physicians enrolled for such courses.

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[12] Vollan, D. D.: Postgraduate Medical Education in the United States, Chicago, American Medical Association, 1955.

Foreign Medical Schools and Students

FOREIGN STUDENTS STUDYING MEDICINE IN THE UNITED STATES

In 1954-1955, there were 379 foreign citizens (excluding Canadians) enrolled as undergraduate students in United States medical schools. All but 23 of the 81 approved schools had such students registered, with 104 in the entering class, 110 in the second year, 89 in the third year, and 76 in the fourth year. This represents a slight increase over last year in the number in the entering class and in total enrollment.

Our medical educational facilities make their greatest contribution to foreign students at the intern and residency level. The Institute of International Education, with some assistance from this Council, has recently completed a study of foreign physicians receiving training in United States hospitals. This study is one of three reported in a bulletin of the institute entitled "Open Doors." The results of this survey are also the subject of a recent publication by McCormack and Feraru.[13]

On the basis of returns from 90% of all hospitals approved for graduate training, it was found that there are currently slightly over 5,000 alien physicians serving in our hospitals as interns (approximately one-third) or residents (approximately two-thirds). This survey included only foreign physicians who were in this country for further study with commitments to return to their home countries at the completion of study.

Approximately one-quarter of these alien physicians come from the far eastern countries, one-quarter from Europe, one-quarter from Latin America, and the remaining quarter from other sections of the world.

This group of physicians is participating in intern and residency programs in 42 states, the District of Columbia, Puerto Rico, Hawaii, and the Canal Zone. It is interesting to note that almost 25% have positions in hospitals in New York State.

AMERICAN STUDENTS STUDYING MEDICINE IN OTHER COUNTRIES (EXCLUDING CANADA)

For a variety of causes it is not possible to obtain accurate information in regard to the number of American citizens studying medicine in other countries. Inquiries and other correspondence addressed to this Council suggest that there has been no significant decrease in the recent incidence of Americans seeking their education in medicine outside the United States. Since this appears to be a post-World War II phenomenon, the first of these students should now begin to appear for licensure examination.

Included in the information sent by the state licensing boards to this office is the place of birth and medical school attended of all candidates examined. These records were studied for the period 1950-1954 inclusive for new licentiates who were born in the United States and graduated from medical schools outside the United States and Canada. It is unfortunate that records from New York and Pennsylvania did not include this information, so that the data given below is for all states, territories, and possessions except New York and Pennsylvania. It is hoped that in the future similar data can be made complete by the addition of information from these two states.

During the five year period studied, 99 initial licenses were granted by 18 states, the District of Columbia, Puerto Rico, and the Canal Zone to physicians born in the United States who were graduates of medical schools outside the United States or Canada. Four states, California, New Jersey, Ohio, and Connecticut, granted 64% of all such licenses.

Physicians in this group graduated from medical schools located in 20 different countries, but almost half were graduates of medical schools in Italy or Switzerland. Initial licenses were granted to 15 such physicians in 1950, 10 in 1951, 15 in 1952, 22 in 1953 and 37 in 1954. These figures are in keeping with the belief that we are now just beginning to note the impact of American citizens who studied medicine abroad.

It should be emphasized again that the data given above depicts initial licenses granted to individuals born in the United States who graduated from medical schools outside the United States and Canada. Information on initial licenses granted to such individuals by the states of New York and Pennsylvania is not included.

FOREIGN MEDICAL SCHOOLS

In February, 1950, the Council on Medical Education and Hospitals of the American Medical Association and the Executive Council of the Association of American Medical Colleges first published a list of foreign medical schools whose graduates they recommended for consideration on the same basis as graduates of approved medical schools in the United States. This recommendation is intended only for those students who successfully complete a course of study identical in all respects with that necessary to be eligible for licensure in the country in which the school is located. This list is intended as a guide for institutions and organizations in this country that deal with foreign medical graduates and as an aid to students who plan to study medicine abroad. It appears in this report as table 27.

It is to be emphasized that it is not now and never has been the policy of the organizations sponsoring this list to consider that action listing a foreign medical school is equivalent to granting approval to medical schools in the United States and Canada. Neither is it intended that there be any inference of disapproval of those foreign medical schools not listed. The list is intended only as a guide to state licensing boards, hospitals, and similar groups with the clear understanding of the Council on Medical Education and Hospitals and the Executive Council of the Association of American Medical Colleges that the ultimate responsibility for evaluating medical credentials and qualifications of foreign-trained physicians, whether graduates of listed or nonlisted schools, rests with those other organizations and not with the sponsors of the list.

Somewhat more than a year ago, a cooperating committee on evaluation of graduates of foreign medical schools was formed with participating representatives from the Council on Medical Education and Hospitals,

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[13] McCormack, J. E., and Feraru, A.: Alien Interns and Residents in the United States, J. A. M. A. 158: 1357-1360 (Aug. 13) 1955.

TABLE 27.—*Foreign Medical Schools*

List Prepared by the Council on Medical Education and Hospitals of the American Medical Association and the Executive Council of the Association of American Medical Colleges

On the basis of information presently available, the Council on Medical Education and Hospitals of the American Medical Association and the Executive Council of the Association of American Medical Colleges are of the opinion that medical institutions and medical organizations in the United States would be justified in considering current and past graduates of the following foreign medical schools on the same basis that they consider graduates of approved medical schools in the United States. This recommendation is intended only for those students who successfully complete a course of study identical in all respects with that necessary to be eligible for licensure in the country in which the school is located. *Because this list is acknowledged to be a tentative one, the position of the councils with respect to schools not named in the list is that they neither approve nor disapprove them.*

Belgium

Free University of Brussels Faculty of Medicine
(Université Libre de Bruxelles Faculté de Médecine)
Catholic University of Louvain Faculty of Medicine
(Université Catholique de Louvain Faculté de Médecine, or
Katholieke Universiteit te Leuven)
University of Ghent Faculty of Medicine
(Universiteit te Gent Faculteit der Geneeskunde, or
Université de Gand Faculté de Médecine)
University of Liège Faculty of Medicine
(Université de Liège Faculté de Médecine)

Brazil

University of São Paulo Faculty of Medicine
(Universidade de São Paulo Faculdade de Medicina)

China

Peiping Union Medical College

This recommendation applies to all those graduates who were granted the degree of Doctor of Medicine from the date when the first degrees were conferred in 1924 until and including the class of 1943. The education of students in the last class, that of 1943, was interrupted by World War II; therefore, some students finally completed their studies as late as 1949. However, their diplomas were issued as of the class of 1943. Following the communist conquest of China, the name of this school was changed to the China Union Medical College. The recommendation does not apply to this school.

Denmark

University of Copenhagen Faculty of Medicine
(Kobenhavns Universitet Laegevidenskabelige Fakultet)

Finland

University of Helsinki Faculty of Medicine
(Helsingfors Universitet Medicinska Fakulteten)
Medical Faculty Turku University
(Turun Yliopiston Laaketieteelinen Tiedekunta)

Lebanon

American University of Beirut School of Medicine

Netherlands

University of Amsterdam Faculty of Medicine
(Universiteit van Amsterdam Geneeskunde Faculteit)
State University of Groningen Faculty of Medicine
(Rijks-Universiteit te Groningen Geneeskunde Faculteit)
State University of Leiden Faculty of Medicine
(Rijks-Universiteit te Leiden Faculteit der Geneeskunde)
State University of Utrecht Faculty of Medicine
(Rijks-Universiteit te Utrecht Faculteit der Geneeskunde)

The Doctoral Examen that is given at the end of the theoretical part of the study of medicine does not confer the degree of Doctor nor the right to practice medicine. The Arts Examen that is given following the completion of an additional two years of practical work in hospitals confers the title of Doctor and also the right to practice medicine.

Norway

University of Oslo Faculty of Medicine
(Kongelige Frederiks Universitet Medisinske Fakultet)

Sweden

Royal Charles University Medical Faculty, Lund
(Kungl. Karolinska Universitetet Medicinska Fakulteten)
Charles Medico-Surgical Institute, Stockholm
(Karolinska Mediko-Kirurgiska Institutet)
Royal University of Uppsala Medical Faculty
(Kungl. Universitetet i Uppsala Medicinska Fakulteten)

Switzerland

University of Basel Faculty of Medicine
(Universität Basel Medizinische Fakultät)
University of Bern Faculty of Medicine
(Universität Bern Medizinische Fakultät)
University of Geneva Faculty of Medicine
(Université de Genève Faculté de Médecine)
University of Lausanne Faculty of Medicine
(Université de Lausanne Faculté de Mèdecine)
University of Zurich Faculty of Medicine
(Universität Zurich Medizinische Fakultät)

The recommendation with respect to the following medical schools in Switzerland applies only to those graduates of Swiss medical schools who hold the Swiss-Federal Diploma issued by the Federal Department of the Interior (Eidgendoissisches Department Des Innern, Département Féderal de L'Intérieur) and obtainable only by Swiss citizens who hold the Certificate of Medical Studies (Akademische Zeugnis, Certificat d'Études Médicales) or who hold one of the following certificates which the Swiss Universities issue to those, not citizens of Switzerland, who complete a course of study and pass examinations equivalent to those taken by Swiss citizens in qualifying for the Swiss Federal Diploma:

University of Basel—Academic Certificate on passing the medical examination for physicians (Akademische Zeugnis über die bestandene Fachprufung für Ärzte).

University of Bern—Medical diploma on passing examination for medicine (Aerztliches Fakultats diplom über die bestandene Fachprufung für Ärzte).

University of Geneva and University of Lausanne—Certificate of Medical Studies (Certificat d'Études Médicales).

University of Zurich—Medical diploma for Foreigners (Medizinisches Diplom für Ausländer).

United Kingdom

England

University of Birmingham Faculty of Medicine
University of Bristol Faculty of Medicine
University of Cambridge Faculty of Medicine
University of Durham Medical School, Newcastle-upon-Tyne
University of Leeds Faculty of Medicine
University of Liverpool Faculty of Medicine
University of London*
University of Manchester Faculty of Medicine
University of Oxford Faculty of Medicine
University of Sheffield Faculty of Medicine

Northern Ireland

Queen's University of Belfast Faculty of Medicine

Scotland

University of Aberdeen Faculty of Medicine
University of Edinburgh Faculty of Medicine
University of Glasgow Faculty of Medicine
University of St. Andrews Medical School, St. Andrews and Dundee

Wales

Welch National School of Medicine, University of Wales, Cardiff

The recommendation applies only to those physicians trained in the United Kingdom who hold medical degrees from the universities listed. The recommendation does not apply to those physicians who received their medical training at these universities or their affiliated hospital medical schools but who obtained their qualifications through the examinations of the licensing corporations of the United Kingdom. It must be observed, however, that registration in the United Kingdom is granted equally to physicians holding the diplomas of the licensing corporations and to physicians holding university medical degrees.

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* Work for the medical degree of the University of London is offered at the following hospital medical schools:

Charing Cross Hospital Medical School
Guy's Hospital Medical School
King's College Hospital Medical School
London Hospital Medical School
Middlesex Hospital Medical School
Royal Free Hospital School of Medicine
St. Bartholomew's Hospital Medical College
St. George's Hospital Medical School
St. Mary's Hospital Medical School
St. Thomas' Hospital Medical School
University College Hospital Medical School
Westminster Hospital Medical School

the Federation of State Medical Boards, the Association of American Medical Colleges and the American Hospital Association. This committee has not been able to formulate as yet a final program that would provide an equitable and adequate method of evaluating graduates of foreign medical schools. Certain progress in this direction has been made, however, and it is the hope and belief of the cooperating committee that it will be able to devise a mechanism for satisfactorily measuring the individual physician rather than attempting to measure educational programs in foreign medical schools. It is presumed that with the development and implementation of an effective program for evaluating foreign graduates, there will no longer be a need for the listing of foreign medical schools.

Technical Schools

The present report on the technical schools approved by the Council on Medical Education and Hospitals includes background material and the present status of educational programs for medical technologists, x-ray technicians, physical therapists, occupational therapists, medical record librarians, and medical record technicians. The lists of approved technical schools are not included in the present issue but have been revised and published in a separate supplement that will be distributed to hospitals, medical schools, approved technical schools, secretaries of state medical associations, editors of state medical journals, state boards of medical examiners, national and state hospital associations, state boards of nursing examiners, state health officers, medical departments of the federal government, allied technical associations, and other agencies. Copies are also available to individual physicians and other subscribers to THE JOURNAL and may be obtained from the Council on Medical Education and Hospitals of the American Medical Association. Copies of the essentials of an acceptable school for establishing educational programs in these important paramedical fields, in which shortages are acute, are available from the Council to those interested in initiating new schools.

SCHOOLS FOR MEDICAL TECHNOLOGISTS

Background.—In 1928 the American Society of Clinical Pathologists established its board of registry of medical technologists in an effort to elevate educational standards for medical technologists. Realizing the need for school inspections, the society requested the Council on Medical Education and Hospitals of the American Medical Association to aid in the study of training programs in 1933. Essentials of an acceptable school were formulated by the Council with the cooperation of the society and ratified by the House of Delegates of the American Medical Association in May, 1936. The first list of 96 schools approved by the Council was published in THE JOURNAL on Aug. 29, 1936.

In its continuous effort to assist hospitals in the development of training programs, the Council has received the full cooperation of the American Society of Clinical Pathologists, and the board of schools of medical technology and board of registry of the society. The board of schools was established by the society in 1949 to serve in an advisory capacity to the Council in matters relating to standards and the evaluation of educational programs. Revisions of the standards occurred in 1941, 1943, 1947, 1949, and 1953.

The board of schools assists the Council in the evaluation of new applications and annual reevaluations of approved schools. An inspection program is carried out by regional inspectors appointed by the board of schools. These pathologists survey all new schools and, in addition, periodically revisit approved schools. The recommendations of the board on new applications and existing schools of medical technology are submitted to the Council for its consideration.

Present Status.—There are 595 schools presently approved by the Council on Medical Education and Hospitals, or a percentage increase of almost 4% over the 575 approved as of May 15, 1954. This is a net increase of 20 training programs which represents 46 newly approved schools, 23 that have been discontinued, 1 disapproved school, and 2 affiliating hospitals previously tabulated as separately approved schools. On the basis of 1954 annual reports, student enrollment has risen almost 5% to 2,384, as compared with the 2,275 reported in 1953.

Reflecting the concerted recruitment efforts of the College of American Pathologists, American Society of Clinical Pathologists, and American Society of Medical Technologists, the occupancy rate for 1954 is 51% in the 595 educational programs, which have a total training capacity of 4,613 students. Unfortunately, the number of graduates continues to decline. There were 2,063 graduates in 1952, 1,971 in 1953, and 1,956 in 1954. It should be noted that the expected increases in the number of graduates and the 1955 enrollment expected in existing and newly approved schools are not represented in the above tabulations, whereas the increase in current student capacity is included.

The admission requirement to an approved school of medical technology is two years of college education, including certain required courses, in a college or university accredited by a recognized standardizing association. Slightly over 82%, or 489 training programs, base admission on this minimum requirement; 73 (12%) require three years of preclinical college education; and 33, or 6%, a degree for admission.

Collegiate affiliations are encouraged, since they assist in the development of well-organized training programs suitably integrated with the college curriculum, as well as serving as a continuing source of students. A total of 374 hospital schools (63%) have established college or university affiliations. College credit is granted for training received in the hospital training program in 57%, or 337 schools, and a degree is available upon completion of a combined three years of college education followed by one year of hospital training in 54%, or 322 schools. While the preparatory collegiate education is longer in duration, it is the hospital course that is directly concerned with the training of medical technologists. The hospital, therefore, should assume full responsibility for the required 12 month course.

The minimum duration of the hospital course, as specified in the essentials, is 12 months. There are now

523 schools, or 88%, conforming to this requirement, of which 21 schools offer, in addition to the 12 month course, longer training programs. The remaining 72 schools (12%) offer programs of from 12½ to 36 months in duration. Tuition is required by 163 (27%) of the schools and 213 (36%) pay a stipend to students.

Pennsylvania has 46 schools, Ohio 43, Illinois and Michigan 33 each, New York 32, and Texas 31. Pennsylvania schools report a student capacity of 417 with a student occupancy of 54%; Ohio 366, 37% occupancy; Texas 292, 38% occupancy; Michigan 284, 42% occupancy; New York 220, 55% occupancy; and Illinois 219, with a 53% student occupancy. All states, the District of Columbia, the Canal Zone, Hawaii, and Puerto Rico have approved schools.

Application for approval of a school for the training of medical technologists should be made to the Council on Medical Education and Hospitals of the American Medical Association, 535 N. Dearborn St., Chicago 10. Forms will be supplied for this purpose on request and should be completed by the director of the laboratory requesting this approval. Inquiries regarding the registration of qualified medical technologists should be addressed to the Board of Registry of Medical Technologists, P. O. Box 1209, Muncie, Ind.

SCHOOLS FOR X-RAY TECHNICIANS

Background.—Prior to 1944, the approval of these schools had been carried on as a function of the American Registry of X-Ray Technicians. In 1943, the Council on Medical Education and Hospitals of the American Medical Association undertook the evaluation of educational programs for x-ray technicians at the request of the registry, which is sponsored by the American College of Radiology and the American Society of X-Ray Technicians. With the assistance of the college and the registry, standards were developed and adopted by the House of Delegates of the American Medical Association in June, 1944.

Since that time the Council has been increasingly and ably assisted by the American College of Radiology, the American Registry of X-Ray Technicians, and the American Society of X-Ray Technicians. Schools making application for approval are surveyed by state and regional councilors appointed by the American College of Radiology. Approved schools are also periodically resurveyed by radiologists appointed by the College. All data are reviewed by the advisory committee to the American Society of X-Ray Technicians of the American College of Radiology and recommendations submitted to the Council for consideration.

During the past year, revisions of the 1944 standards have been developed with the advisory groups. These revisions, which incorporate a suggested basic curriculum previously approved by the college, registry, and society, will be submitted to the House of Delegates of the American Medical Association for its consideration in December.

Present Status.—At present there are 422 schools approved by the Council on Medical Education and Hospitals for training x-ray technicians. This represents a net increase of 53 schools, or an increase of 14% over last year; there were 58 newly approved schools, 4 discontinued and 1 disapproved school. There has been a 377% increase in the number of approved schools since the first published list of 112 in 1945. Enrollment has increased 517, or 25%, to a total of 2,613 students during the last year in which total training capacity has risen to 3,184 from 2,583, or an increase of 23%. The number of graduates in 1954 was 1,523, as compared with 1,259 in 1953, which is a 21% increase.

The minimum admission requirement is high school graduation or passing a college entrance examination. A total of 400 schools (95%) admit students directly out of high school, 13 schools (3%) require one year of college, 8 schools (almost 2%) require two years of college, and 1 school accepts only R.N.'s. Of the above 422 schools, 6 will accept an applicant with either an R.N. or one to two years of college, 4 an R.N. or high school graduation, and, as noted, 1 school accepts R. N.'s only.

The length of training in 195 schools (46%) is 24 months, 12 months in 158 (38%), 18 months in 38, or 9%, a range of 12 to 24 months in 9 (2%), and a range of 14 months to 4 years in the remaining 22 (5%). Tuition is required by 37% of approved schools, and 57% pay students a stipend. There are collegiate affiliations established with 148 schools (35%). College credit is granted for training satisfactorily completed in the hospital training program in 13%, or 53 schools.

There are 38 approved schools in Illinois, 30 in Pennsylvania, 28 in Ohio, 23 in Texas, 21 in California, 18 each in Michigan, Missouri, and New York, 16 in Wisconsin, and 14 or fewer in all but one of the remaining states, the District of Columbia, and Hawaii. One state does not have a school.

Applications for approval of schools of x-ray technology should be submitted to the Council on Medical Education and Hospitals of the American Medical Association, 535 N. Dearborn St., Chicago 10. Inquiries regarding registration of qualified x-ray technicians should be addressed to the American Registry of X-Ray Technicians, Metropolitan Building, Minneapolis 1.

SCHOOLS FOR PHYSICAL THERAPISTS

Background.—From 1928 to 1936 the approval of educational programs in this field was carried out by the American Physical Therapy Association. On request of that association, the Council developed standards that were adopted by the House of Delegates and were published with the first list of 13 approved schools in 1936. The Council, in cooperation with its advisory groups, the Council on Physical Medicine and Rehabilitation of the American Medical Association and the American Physical Therapy Association, has periodically submitted revised standards to the House of Delegates, which were adopted in 1943 and 1949. As a result of over three years of intensive discussion and study, a current revision of standards for educational programs will be submitted to the House in December for its consideration.

Applications of new schools are reviewed by the advisory groups, surveys are conducted by the Council staff, and recommendatory action is submitted to the Council for action. More thorough periodic evaluation of approved schools is under study.

Present Status.—There are, at present, 35 schools approved by the Council for training physical therapists. This represents an increase of two new schools, in that three affiliating army hospitals were previously tabulated as separate training programs. The training capacity of the senior class in degree and certificate programs is 941 students, as compared with 898 in 1953 and 842 in 1952. The schools reported 1954 senior class enrollment as 690, or a 73% occupancy. As a result of intensive recruitment, enrollment in the preparatory years of training is also increasing. The number of graduates from the degree and certificate programs for the past five years has steadily risen except for the year 1952. There were 490 in 1950, 591 in 1951, 582 in 1952, 591 in 1953, and 609 graduates in 1954.

Certificate and/or degree recognition in physical therapy is available depending upon the students' preparatory education prior to entering the professional curriculum specified in the essentials of an acceptable school. Most schools have both certificate and degree programs, although some offer only one course.

Certificate programs offered in 30 schools vary in length from 12 months to 34 months. The certificate educational program is 12 months in 20 schools and varies from 14 to 34 months in the remaining 10. Students may qualify for entrance to many of the approved schools in several ways. Three years of college education is required by 16 schools, graduation from a nationally accredited school of nursing of at least three years' duration to include certain prerequisite courses is specified by 16, 12 require four years, 5 specify two years of college prior to admission, and 9 will accept qualified graduates of schools of physical education.

The entrance requirement for 18 degree programs of four years' duration is high school graduation. In the remaining 10 degree programs, which are of shorter duration, entrance requirements are specified as three years of college by 6, two years by 3, and four years of college by 1 of the schools. The tuition in all teaching centers closely parallels college fees. Most courses begin in February or the early fall.

Applications for approval should be made to the Council on Medical Education and Hospitals of the American Medical Association, 535 N. Dearborn St., Chicago 10. Forms will be supplied for this purpose on request. They should be completed by the administrator of the institution requesting this approval. Inquiries regarding registration of qualified therapists should be addressed to the American Registry of Physical Therapists, 30 N. Michigan Ave., Chicago 2.

SCHOOLS FOR OCCUPATIONAL THERAPISTS

Background.—In 1933 the American Occupational Therapy Association requested the House of Delegates of the American Medical Association to undertake a survey of educational programs for occupational therapists. Under instruction from the Board of Trustees, the Council on Medical Education and Hospitals developed standards and surveyed existing schools. The Essentials of an Acceptable School of Occupational Therapy were first published in The Journal, May 4, 1935. The first list of six approved schools appeared in 1938. In cooperation with the advisory groups in occupational therapy, the Council on Physical Medicine and Rehabilitation of the American Medical Association, and the American Occupational Therapy Association, the essentials were revised in 1938 and 1949. New applications are reviewed by the advisory groups, surveys are conducted by the staff, and recommendatory action is submitted to the Council on Medical Education and Hospitals for action. Increased attention is being given to procedures for more frequent periodic reevaluation of existing educational programs.

Present Status.—There are currently 29 schools approved by the Council for training occupational therapists. This represents a net increase of 2 new schools since the May 15, 1954, list of 31 schools separately tabulated, 4 Army hospitals affiliating with one army school. There will be no students accepted into the Army occupational therapy course for the fiscal year 1956, since the course has been put on a stand-by basis.

There has been an increase in student capacity of 61 in 1954 to a total capacity of 960. The enrollment in the senior class of degree and in certificate and advance standing courses is 568 students as compared with 602 for 1953. It should be noted that the schools reported 493 students, not included in the above enrollment, as engaged in the clinical training phase of courses. For the past five years there has been a continuous increase in the number of graduates as follows: 377 in 1950, 418 in 1951, 441 in 1952, 472 in 1953, and 489 in 1954. This represents a percentage increase of 30% in the past five years.

Both certificate and degree recognition are available in occupational therapy depending upon the type and integration of preparatory training prior to entering the professional curriculum. Certificate programs, generally of 18 to 24 months in length, are offered by 22 schools, of which 20 specify a degree prior to admission and 2 accept qualified applicants with either a degree or an R.N. Educational programs of four to five years' duration that lead to a degree are available in 24 schools that admit students directly from high school. Two schools require two years of college prior to admission to degree courses of slightly over two years' duration. Tuition varies in accord with university fees. The majority of courses begin in February and September.

Application for the approval of a school of occupational therapy should be made to the Council on Medical Education and Hospitals of the American Medical Association, 535 N. Dearborn St., Chicago 10. Forms will be supplied for this purpose on request. They should be completed by the administrator of the institution requesting approval. Inquiries regarding the registration of qualified therapists should be addressed to the American Occupational Therapy Association, 33 W. 42nd St., New York 18.

SCHOOLS FOR MEDICAL RECORD LIBRARIANS

Background.—In 1942 the American Association of Medical Record Librarians requested the American Medical Association to evaluate educational programs in medical record library science. The Council formulated standards that were adopted by the House of Delegates of the American Medical Association in June, 1943. Subsequent revisions in standards were made in 1945 and 1949. The first list of 10 approved schools was published in 1944.

Working in close collaboration with the American Association of Medical Record Librarians, its committee on education and registration, and its recently appointed education director, training programs and new applications are reviewed by the Council, periodic surveys are conducted, and recommendatory action is submitted to the Council for action on new and existing schools.

Present Status.—At the present time there are 25 schools approved by the Council for training medical record librarians. This represents a net increase of one school, including two newly approved schools and one school that has been discontinued since 1953. Eighteen approved schools reported a 1954 enrollment of 115, which is an increase of 9 students over the 106 training in the 18 schools that had students in 1953. The number of graduates has progressively increased during the past three years. Graduates for the past five years were as follows: 83 in 1950, 58 in 1951, 92 in 1952, 99 in 1953, and 114 in 1954, or an increase of 38 per cent in this period. A student capacity of 231 was reported for 1954 as compared with 218 in 1953.

Depending upon the students' previous education, both degree and certificate recognition are available following satisfactory completion of the required training program in medical record library science. Of 18 certificate programs that are one year in duration, 13 require either two years of college education or an R.N. for admission, 1 accepts only students with two years of college training, and 4 require a degree. Six schools offer a four year educational program which leads to a degree and admit students directly out of high school. Three schools have a degree program of 12 months' duration with an admission requirement of three years' preparatory college education. Since two schools offer both degree and certificate courses, there are 18 certificate and 9 degree programs available in the total of 25 approved schools. Fifteen schools maintain college or university affiliations.

The beginning dates for courses are predominately in September, several begin in the winter, and a few in June or July. Tuition ranges from $135 to $600, and one school requires none.

Application for approval should be made to the Council on Medical Education and Hospitals of the American Medical Association, 535 N. Dearborn St., Chicago 10. Inquiries regarding the registration of qualified medical record librarians should be addressed to the American Association of Medical Record Librarians, 510 N. Dearborn St., Chicago 10.

SCHOOLS FOR MEDICAL RECORD TECHNICIANS

Background.—In view of the continuing acute shortage of trained personnel in medical record library science, the American Association of Medical Record Librarians recommended that consideration be given to the establishment of additional training programs for students directly out of high school. In cooperation with the Committee on Education and Registration of the American Association of Medical Record Librarians, the Council developed standards which were approved by the House of Delegates of the American Medical Association in December, 1953. These standards are prepared for the training of the medical record technician who, working under the supervision of a qualified medical record librarian or a medical record committee, performs the technical tasks associated with the maintenance and custody of medical records.

As in the case of schools for medical record librarians, the Council evaluates educational programs and new applications and surveys schools in close collaboration with the American Association of Medical Record Librarians. The training of medical record technicians should be conducted in acceptable general hospitals having a minimum of 4,000 annual admissions. These admissions should include an adequate distribution of patients in the various clinical services commonly found in general hospitals. Candidates for admission to an approved school should be proficient in typing and preferably also in shorthand. They should have completed the requirements for high school graduation or should have passed a college entrance examination for admission to an accredited college or university. The minimum length of training is nine months and should include theoretical instruction in anatomy, medical terminology, and medical records, with additional practical training in admitting and discharge procedures, indexing, preparation of reports, and other activities associated with the medical record department.

Present Status.—There are seven schools approved by the Council for training medical record technicians. These schools report a training capacity for 46 students with an enrollment of 28 in 1954. Qualified high school graduates are accepted for courses of from 9 to 12 months' duration. There were 17 graduates reported in 1954.

Application for approval should be made to the Council on Medical Education and Hospitals of the American Medical Association, 535 N. Dearborn St., Chicago 10. Special forms will be supplied for this purpose, and when the required information has been received, the proposed training program will be reviewed in collaboration with the Committee on Education and Registration of the American Association of Medical Record Librarians. The institutions applying for Council approval will, in all instances, receive full information and every possible assistance in the planning and development of training programs in accordance with present standards. Inquiries regarding the registration of qualified medical record personnel should be addressed to the American Association of Medical Record Librarians, 510 N. Dearborn St., Chicago 10.

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MEDICAL EDUCATION IN THE UNITED STATES AND CANADA, 1954-1955

This issue of THE JOURNAL carries the 55th Annual Report on Medical Education in the United States and Canada prepared by the Council on Medical Education and Hospitals of the American Medical Association. Its objective is to inform the profession and all others interested of the current status, developments, and trends in this important area of education. Administrative officials of medical schools and their parent universities and representatives of other agencies have been most cooperative in the submission of the current data and information essential in the compilation of a report of this nature, and for this assistance the Council is deeply grateful.

Analysis of the statistical data and textual information reveals that 1954-1955 has continued to be a year of steady progress in the field of medical education. The University of California at Los Angeles graduated its first class of physicians in June, 1955. Thus there are now 75 approved four year medical schools and 6 schools of basic medical science in the United States. Canada has 11 approved four year medical schools and one school of basic medical science. In 1956 the University of Miami will graduate its first class. The University of Missouri and the University of Mississippi will initiate the instruction of their first third year classes in 1956 in their process of conversion from a two year basic science to a four year program. Albert Einstein College of Medicine has admitted its first entering class for the 1955-1956 academic session. Current plans envisage the admission of the first students at Seton Hall College of Medicine and the University of Florida for the 1956-1957 academic session.

Total enrollment in medical schools in the United States during the 1954-1955 academic year was 28,583, and 6,977 physicians were graduated. This is an all-time record, both for total enrollment and for physicians graduated. It is anticipated that there will be a slight drop in the number of graduates in 1956 and that thereafter, with the completion of the medical school programs currently under development, there will be a steady augmentation of the number of graduates through 1960. It is not possible to accurately estimate the actual number of potential graduates at that time, as the total may be increased by larger enrollments in existing medical schools in addition to those of the newly developing schools.

The general information tables on approved medical schools in the United States and Canada have been made more comprehensive in this report and have made it possible to eliminate several pages of material formerly devoted to short summary sketches on each institution.

Curriculum studies and readjustments are constantly being conducted by the medical schools in efforts to meet the continuing challenge that is presented by the rapid advances in knowledge and the readjustments of emphasis that such information necessitates. On every hand there is evidence of stimulating educational experimentation in the constant effort to afford the best possible background for the young physician. The Council staff can find no institution in the field of undergraduate medical education in the United States and Canada where there is not tangible evidence of continuing effort to achieve the best possible objectives within the limits of the personnel, facilities, and finances of each institution.

There has been a modest improvement in medical school financing as indicated by the projected budgets for 1955-1956; however, the basic "hard money" sources have increased relatively little, while funds available from grants-in-aid for special teaching projects and research have materially increased. It is of considerable interest to all concerned with and interested in the activities of medical schools that such outside grants-in-aid approximate two-thirds of the sum budgeted for basic medical school activities. It is furthermore of interest to note that, except for the facilities and part of the personnel financed by the basic medical school budgets, approximately 95% of the support of the important research that is now conducted by the medical schools is made possible by and is dependent on such grants. Efforts have been made in this report to highlight the importance of this "medical school—granting agency" partnership that has developed in recent years and that has been largely responsible for the greatly augmented teaching and research activities that the schools have been able to conduct.

During recent years, programs of regional cooperation in the field of higher education, beginning with the development of the Southern Regional Education Board, have demonstrated the potentialities of interstate arrangements. These programs to date have used the facilities of both private and government-supported schools in the effort to improve educational opportunities and at the same time to reduce the need for duplication of costly professional educational institutions in areas that could finance them only under great difficulty. The Western Interstate Compact for Higher Education is now under way, and the basis for a New England regional program has been established. It is to be hoped that the further development of interstate cooperation of this type will continue to give full consideration to the role of both private and government-supported institutions, as it appears to be an exceedingly logical and workable means of approach to meeting needs for opportunities in higher education as well as allowing fair distribution of its cost factors.

This report includes the basic table of a study that has been conducted by the Bureau of Economic Research of the American Medical Association in regard to what happens to medical school graduates. In the relatively near future, the Bureau will issue a report to the medical schools that will give each institution a comprehensive picture of the activities of its graduates and their distribution. It will afford comparative study of the areas of activity into which the graduates of each of the schools have entered. The initial study will represent data for the schools through April, 1950, and it is planned that supplementary data will be furnished in the course of the next two years.

Along with the many evidences of continued progress, the field of medical education faces many challenging problems. Improved financing for more adequate and modernized facilities in some institutions and for faculty remuneration continues to be an important problem. This area of challenge includes clarification of the financing of clinical faculty personnel, questions concerning the institutional practice of medicine, and relationship between medical school faculties and physicians in private practice in areas where schools are located. Faculty recruitment constantly presents challenging problems. Student recruitment is of equal concern. It is to be hoped that the downward trend in number of applicants for admission to the study of medicine has reached its limit and that there will be an increase in qualified applicants in the future. Curriculum readjustments will be a continuing challenge in efforts to meet the constantly changing needs. Each medical school faces the eternal need of maintaining a proper and reasonable balance between its activities in teaching and research. There is no common equation that is applicable in the determination of what this balance should be, and each institution must satisfy its requirements in light of the facilities, faculty personnel, objectives, and resources available to it. Finally, the increasing responsibilities of medical schools in graduate and postgraduate medical education necessitate constant evaluation and reorientation of over-all administrative and teaching and research activities as well as readjustments of facilities, personnel, and financing.

PARTNERSHIP IN MEDICAL TEACHING AND RESEARCH

In the information in this issue of THE JOURNAL in regard to the projected financing of medical education and research during 1955-1956 it will be observed that grants for research and teaching from outside sources will make funds available for these activities equivalent to about two-thirds of the amount projected for basic operational budgets derived from government appropriations, endowment, tuition, general university appropriations, and gifts. Although the medical schools do finance from their basic budgets some of the facilities, equipment, general administrative, and some of the personnel factors involved in these special activities, only 23 of the 81 medical schools in the United States report a total of slightly over $1,500,000 allocated to research from their basic operational budgets. In other words, nearly 40 times as much support for research and special teaching projects is anticipated from outside sources as is to be derived from basic operational budget allocations.

For many years it has been recognized by medical educators that education and research are full partners in the modern setting of a dynamic medical school. New knowledge is accumulating with almost unbelievable rapidity. New problems as well as many older still unsolved ones constantly confront those who teach and practice medicine. The concept of a progressive medical educational institution can no longer be built around the motif of teaching alone, for the staff and curriculum of such an institution would be obsolete almost from the beginning. Good teachers in medicine are persons who are not content with passing on known information and guidance as to its use. They are individuals who are concerned with and stimulated by the constant challenges to solve some of these problems. It is this interest in the solution of problems that, in addition to ability and background preparation, constitutes the backbone of the research instinct. One of the greatest attractions in the field of academic medicine is the opportunity to work in the field of investigation along with the activities involved in teaching students. The end-products of acquisitions to knowledge are not the only inherent values of the research conducted in the medical school environment. One of the important by-products of an environment in which both active teaching and research are taking place is the opportunity offered to medical students to become fully aware of and eventually possessed with the research attitude in its application to all aspects of the practice of medicine.

The present-day development of research in association with teaching presents many problems to medical administrators and teachers. The primary function of medical schools as educational institutions must constantly be maintained in the forefront. Research activities should supplement and enhance the teaching in an institution and never be permitted to overshadow or interfere with the basic needs for sound medical education. The appropriate balance of activities in the two areas is difficult to determine and is a local challenge for each institution to solve in the best interests of both teaching and research.

The support of the activities in teaching and research has in recent years become a partnership between institutions that maintain the basic educational programs and the outside agencies that allocate funds for research and special teaching programs. The importance of this partnership in the maintenance of this dual responsibility should be given full recognition. Many foundations and other organizations have played important roles over the years in underwriting the financing of important experimental educational programs as well as research activities. Among them are such organizations as the Rockefeller Foundation, the Commonwealth Fund, the Carnegie Corporation, John and Mary R. Markle Foundation, the W. K. Kellogg Foundation, the Kresge Foundation, the M. D. Anderson Foundation, the National Foundation for Infantile Paralysis, the American Cancer Society, the American Heart Association, and many other organizations in the fields of mental health, arthritis, crippled children, and various categories of the exceptional child. Pharmaceutical organizations and drug manufacturers have been important contributors to both research and continuing education programs. The Public Health Service and its National Institutes of Health as well as other federal agencies have in recent years constituted the group of organizations allocating the greatest support to research and to the development of special teaching projects.

In any evaluation of the support of the activities conducted in the environment of the medical schools today it is important that full recognition be given to all of the factors that play such important roles in the education of physicians and in the advance of medical knowledge. Without the interest and financial assistance afforded by these many organizations and agencies the dual activities of teaching and research could not have attained their present high development.

BACKGROUND FOR GENERAL OR FAMILY PRACTICE AND SPECIALIZATION

Occasionally the impression is gained that there are some who believe that the basic education and training offered to medical students and young physicians who contemplate entering the field of general or family practice should be something different, less thorough and less exacting than is needed by those who plan to specialize. The discarding of any such outmoded and erroneous concept of a double standard of excellence in basic medical education and training or in medical care is long overdue. The medical profession itself is dedicated to the concept of the best possible medical care for the American public. This necessitates adherence to a single standard of excellence in basic undergraduate and graduate education and training for all medical students and physicians regardless of the field of medical practice that they eventually choose to follow. The cultivation and teaching of medicine on a strictly scientific basis accompanied by wise indoctrination in the art of practice is the only sound professional education to offer all persons planning to dedicate their future to any phase of the practice of medicine. To achieve this end there can be no concept of double standards.

Events occurring in the first half of the 20th century have profoundly changed the practice of medicine and the educational background essential in preparation for its pursuit. Knowledge of scientific information applicable to all areas of medical practice has accumulated with almost bewildering rapidity. At the turn of the century a medical diploma was almost an open door to any and all facets of the medical practice of that period. With the currently available knowledge applicable to medicine no single individual can be equally effective in all areas of practice. Specialization has been a natural and necessary accompaniment of this vast accumulation of applicable scientific knowledge. It is a recognized essential part of the practice of medicine today and will be a permanent aspect of the medicine of the future. To be of maximum effectiveness it must be cooperative in nature, for man and his medical problems must be evaluated as a whole and not in isolated segments.

The need for high standards of preparation for the practice of any specialty in medicine has long been recognized. Excellent programs of graduate and postgraduate medical education have been developed by the various specialty boards in their efforts to assure that those whom they certify can render the best possible care to the American public they will serve. On the other hand, the planning and development of genuinely adequate programs of graduate education for those who choose to follow the field of general or family practice has not generally received such meticulous attention on the part of medical educators.

In view of the broad and comprehensive challenge confronting any physician who enters the field of general or family practice today, it would seem that a single year of rotating internship, no matter how carefully planned or supervised, is inadequate graduate preparation. Many of the medical schools have incorporated student externships, family care programs, general practice clinics, and other approaches in an effort to give the undergraduate some concept of the challenge and scope of this field of activity. A few institutions have developed graduate experiences of two years or longer designed to offer better preparation for this area of practice. Currently medical educators face the challenge of careful evaluation of the needs in graduate education for those who choose this field and development of programs that will reflect the same thought and consideration that has been given to graduate medical education in the narrower specialty fields. Trends in specialization will not eradicate, in the foreseeable future, needs for well-qualified and highly competent personnel in the field of general or family practice. Is it not time, therefore, that every effort should be made to assure the same high standards of preparation for "specialists" in this important field as have been given to the preparation of personnel in the narrower specialties? Such developments will involve analysis of the current needs and definition of the scope of general or family practice today and its potential future in order to design graduate educational programs of maximum value.

CURRICULUM—A RACECOURSE OR A WELL-PLANNED PROGRAM?

Literally translated from the Latin, the word curriculum means "a running" or "a racecourse." In its usually accepted sense, it is interpreted as meaning a course of study or the whole body of courses offered in an educational institution or in one of its departments. Knowledge of science and human behavior applicable to the field of medicine is currently accumulating at such a rapid rate that those responsible for the development of the course of study in a medical school are constantly confronted by the challenge of preventing the curriculum from becoming a racecourse rather than a well-balanced program.

In the foreword to the Proceedings of the First World Conference on Medical Education, Sir Lionel Whitby [1] indicates that "the curriculum, important as it is, is no more—and no less—than the structure of medical education; and this structure is given significance by the spirit that informs it and the functions that are fulfilled within it." Deitrick and Berson [2] in the introduction to the report of the survey "Medical Schools in the United States at Mid-Century" call attention to the fact that "in the educational program of a medical school the quality of the faculty and its attitude towards and interest in education are more important than the exact organization of the curriculum." They furthermore state that "a curriculum can be sound only if it is designed for the student and based on sound educational principles. The curriculum must be designed by the faculty as a whole. Each department must see clearly the complete sphere of the program before considering its own segment, and with the student the paramount interest in mind."

Traditional patterns developed in curriculum planning are difficult to readjust unless those who are charged with the responsibility of the curriculum's organization are fully aware of the areas requiring modification in light of the constantly changing scene. No one person in a medical school setting can effectively accomplish it. No small group within a medical school can keep a curriculum dynamic and reasonably balanced unless it effectively represents all facets of the total curriculum content and has a clear-cut concept of the objectives of the total program. It is difficult to readjust traditional allocations of time that require major modification in courses unless curriculum planners have sound knowledge and perspective. Too frequently there is a tendency to add to the curriculum without the preliminary or associated subtraction that is imperative if the total program is to be meaningful.

Departments sometimes indicate that they cannot reduce time and maintain an effective program. It is doubtful that there is any area in a medical curriculum that cannot be modified to fit into a reorganized program if there is complete understanding and full appreciation of the need for such readjustment. Information of details, sometimes forgotten as soon as courses are passed, can be effectively replaced by programs designed to give sound concepts that, in the long run, may represent a more permanent acquisition of knowledge. Curriculum changes made with resentment, lack of full understanding, or unwillingness to modify course content in keeping with modified time allocations may be unrewarding. Those made with widespread knowledge and acceptance of the objective in the total program and entered into with understanding cooperation can achieve the desired ends. Thus, the effectiveness of the curriculum in a medical school does center on the quality of the faculty and its attitude toward and interest in medical education. Unless each department is aware of the total program and its role in it and fully conscious of the changes that necessitate modifications of time allocations and course content, curriculum planning can indeed result in a racecourse for the student rather than the well-balanced educational opportunity it should be.

MEDICOLEGAL SYMPOSIUMS IN OCTOBER

Lawyers and physicians will be taking a major step toward better understanding in the medicolegal field when they meet together at three regional symposiums in October (see this issue, page 611). The need for closer cooperation becomes more apparent with each additional change in our already complex laws and with the many advances in medical science. The Law Department and the Committee on Medicolegal Problems of the American Medical Association are sponsoring this series of meetings where the two professions may discuss important medicolegal subjects and exchange information.

This is an encouraging move at a time when the physician is becoming increasingly aware of the duties, responsibilities, and privileges involved in his somewhat unusual relationship with the law. Busy with practice and research, the physician may not know of or be able to meet the demand on his time and energy that may be necessary in his medicolegal role. A good working relation between the legal and medical professions is needed not only by the two professions but by the public. Working together and with the courts, the two professions should be able to iron out many of the difficulties that harass the lawyers and physicians, particularly in the fields of criminal investigation, expert testimony, and professional liability.

The success of interprofessional discussions in numerous localities is an indication of the gains that can be anticipated through larger meetings drawing participants from wider areas. The opportunities for good in this field are large. The cooperation of the profession in planning the symposiums and the enthusiasm displayed through advance registration thus far give promise of attaining these potentialities.

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[1] Whitby, L., in Proceedings of the First World Conference on Medical Education, London, England, Oxford University Press, 1954, p. iii.

[2] Deitrick, J. E., and Berson, R. C.: Medical Schools in the United States at Mid-Century, New York, McGraw-Hill Book Company, Inc., 1953, pp. 5-6.

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

First Session, 84th Congress

Medical Facilities Survey and Construction Act of 1955

Congressman Davidson (D., N. Y.) proposes, in H. R. 7838, "to amend the hospital survey and construction provisions of the Public Health Service Act to provide assistance to the States for surveying the need for psychiatric hospitals, psychiatric treatment and rehabilitation facilities, and facilities for the diagnosis, treatment, and care of narcotic addicts, and to provide assistance in the construction of such facilities through grants to public and nonprofit agencies, and for other purposes." This amendment would authorize 75 million dollars in matching grants over a three year period for construction and $750,000 to assist the states in making surveys of their existing psychiatric facilities for drug addicts. Assistance could not exceed 50% of costs, but each state's allotment would not be less than $25,000. This bill was referred to the Committee on Interstate and Foreign Commerce.

Federal Scholarships for Scientific Subjects

Congressman Powell (D., N. Y.) has introduced, in H. R. 6176, a similar bill to his H. R. 2179, previously reported. This would authorize the Commissioner of Education to award scholarships for college or graduate study in engineering, physics, chemistry, or similar scientific subjects, which could include medicine. A commission of 12 would advise the Commissioner of Education on administration of this program. Both measures were referred to the Committee on Education and Labor.

MEDICOLEGAL SYMPOSIUMS PLANNED

More than 300 physicians and attorneys are expected to attend each of three medicolegal symposiums planned for Oct. 9, 16, and 30 in Chicago, Omaha, and New York City under the sponsorship of the A. M. A. Law Department and the Committee on Medicolegal Problems. Some of the subjects to be discussed include the physician's role in investigating violent deaths, the increasing number of unjustified professional liability suits, and the responsibility of physicians and lawyers in assuring unbiased medical testimony in personal injury cases.

The meetings are intended to improve the understanding by each profession of the problems of the other and to make the result of medical-legal contact more successful for both professions and the public. C. Joseph Stetler, Director of the Law Department, is directing the series of meetings. Among physicians and attorneys who will participate will be Dr. Elmer Hess, A. M. A. President; Dr. George F. Lull, Secretary-General Manager; James R. Reuling, Trustee; Dr. Louis J. Regan, Los Angeles, physician and attorney; Dr. Alan R. Moritz, Cleveland, Chairman of the Committee on Medicolegal Problems, and Irving Goldstein, Chicago, legal authority.

A feature of the symposiums will be a demonstration illustrating a medical expert witness under direct and cross examination. The witness will be Dr. Ralph E. DeForest, Secretary of the Council on Physical Medicine and Rehabilitation, who will be examined by R. G. Van Buskirk and Edwin J. Holman of the Law Department staff. Conference chairman will be: Chicago—Dr. Harlan English, Danville, Ill.; Omaha—Dr. Joseph D. McCarthy, Omaha; New York—Dr. David B. Allman, Atlantic City, N. J. Other participating physicians will be Eric Oldberg, L. Willard Shabat, and Roland P. Mackay, Chicago; Richard Ford, Boston; John Gilligan, Nebraska City, Neb.; and Samuel Brock, New York City.

ANNUAL CONFERENCE ON PHYSICIANS AND SCHOOLS

The fifth annual Conference on Physicians and Schools, sponsored by the A. M. A. Bureau of Health Education, will be held Oct. 12-14 at the Hotel Moraine, Highland Park, Ill. These conferences are designed to explore policies for joint action by those in public health, education, and medicine that will lead to the development of effective health services for school children and to explore the influence of today's pattern of living on the health and behavior of children. Much of the program is given to discussion groups. Among the speakers on the program will be Surgeon General Leonard Scheele, U. S. Public Health Service, and Samuel Brownell, commissioner, Office of Education, U. S. Department of Health, Education, and Welfare. Dr. James R. McVay, Kansas City, Mo., member of the A. M. A. Board of Trustees, will preside at the dinner the evening of the first day, and A. M. A. President Elmer Hess will be the principal speaker.

QUARTERLY CUMULATIVE INDEX MEDICUS

Volume 53 of the Quarterly Cumulative Index Medicus, covering literature for the first half of 1953, has been mailed to subscribers and is now available for purchase from the Order Department of the American Medical Association. It is expected that the next volume will be in the final stages of production by the end of the year. Beginning Jan. 1, 1956, the subscription rate for the Index will be increased to $25 per year and the price for a single volume to $15. However, any orders for volumes due in 1953, 1954, and 1955 placed in advance of this date will be honored at the old rates.

The Federal Medical Legislation summary is prepared by the Washington Office of the American Medical Association.

MEDICAL NEWS

CALIFORNIA

Workmen's Compensation Lectures.—Lectures on California workmen's compensation will be given at the University of California Extension Center, 813 S. Hill St., Los Angeles, on Mondays, 7-9 p. m., for 15 weeks beginning Oct. 10. Douglass A. Campbell, referee with the California Industrial Accident Commission, will serve as instructor.

Hospital News.—Samuel Merritt Hospital, Oakland, has changed its organization from a trusteeship to a nonprofit corporation. The Merritt Hospital, a 40-bed institution in 1909, has grown to a 7 million dollar, 225-bed medical center under a three man trusteeship, established to carry out the wishes of Dr. Samuel Merritt, a pioneer doctor and former mayor of Oakland. The new seven-man board of directors includes Drs. George G. Reinle, president, and William Earl Mitchell, vice-president (trustees), and Drs. James A. Barr and Philip N. Baxter.

Annual Practitioners Meeting.—The seventh annual scientific assembly of the California Academy of General Practice will convene at the Palace Hotel, San Francisco, Oct. 9-12. Presentations by out-of-state speakers will include:

Teen-Age Gynecology, Goodrich C. Schauffler, Portland, Ore.
Background of Coronary Artery Disease, William H. Gordon, Lubbock, Texas.
Obesity and Thinness; Which Goiters are Best Treated with Radioactive Iodine and Which with Surgery? Edward H. Rynearson, Rochester, Minn.
Migraine and Vascular Headaches, Perry S. MacNeal, Philadelphia.
Present Day Aspects of Cancer of the Intestinal Tract, Edward S. Judd Jr., Rochester, Minn.
The Acute Surgical Abdomen in Infancy and Early Childhood, Charles W. McLaughlin Jr., Omaha.
Cancer of the Uterus: Diagnosis and Treatment, Joe V. Meigs, Boston.

A live clinic on pulmonary disease problems has been scheduled for Tuesday, 1:30 p. m. The dinner dance (informal) will be held at 7:30 p. m. Tuesday.

CONNECTICUT

Yale Society Meeting.—Dr. Charles Gardner Child III, professor of surgery, Tufts College Medical School, Boston, will present before the Yale Medical Society at 8:15 p. m. Oct. 10 in the Fitkin Amphitheater at the Yale-New Haven Medical Center "The Surgical Physiology of Portal Hypertension." All physicians are invited.

DISTRICT OF COLUMBIA

Annual Scientific Assembly.—The Medical Society of the District of Columbia will hold its 25th annual scientific assembly at the Hotel Statler, Washington, D. C., Oct. 10-12. The address of welcome by Dr. W. Ross Morris, president, Monday, 9:15 a. m., will be followed by "The Scientific Basis for Surgical Treatment of Coronary Disease" by Dr. Claude S. Beck, Cleveland; "The Clinical Aspects of Surgery for Coronary Disease" by Dr. Bernard L. Brofman, Cleveland; "Evaluation of the Antipoliomyelitis Program" by Drs. Thomas Francis Jr., Ann Arbor, Mich., and Robert F. Korns, Albany, N. Y.; and "The Veterans Administration Hospital Program" by Dr. William B. Walsh, Washington, D. C. The afternoon session will open with a symposium on diagnostic and therapeutic uses of radioisotopes, with Dr. Oscar B. Hunter Jr., Washington, D. C., as moderator. The symposium will be followed by "Therapy of Far Advanced Carcinoma of the Breast" by Dr. James R. Maxfield Jr., Dallas, Texas, and "Chemotherapy in Malignant Disease" by Dr. C. Lockard Conley, Baltimore. A symposium on the tissue committee from the viewpoint of the surgeon is scheduled for Wednesday at 10:45 a. m., and a clinicopathological conference will be held at 3:15 p. m. Presentations by out-of-state speakers on Tuesday and Wednesday will include:

Obstetrical and Gynecological Applications of the Effect on the Pelvis by Man's Assumption of the Erect Posture, Joshua W. Davies, New York.
Complications of Chlorpromazine Therapy, Jacob Kirshner, New York.
Appraisal of Total Gastrectomy, Karl C. Jonas, Philadelphia.
Newer Aspects of Sympathectomy in Arterial Occlusive Disease, Gerald H. Pratt, New York.
Long-Term Anticoagulants in Coronary Atherosclerosis, E. Sterling Nichol, Miami, Fla.
Problem of the Solitary Pulmonary Nodule, C. Allen Good, Rochester, Minn.
Esophagitis—A Common Condition *Frequently Overlooked*, Herbert W. Schmidt, Rochester, Minn.
Newer Aspects of Therapy in Infectious Hepatitis, Thomas C. Chalmers, Boston.
Recent Advances in Studies in Infertility, Fred A. Simmons, Boston.
Coagulation Defects in the Postpartum Period, Arthur Sawitsky, Jamaica, N. Y.
Early Stages in Development of Carcinoma of the Cervix, Leland D. Stoddard, Augusta, Ga.
Differential Diagnosis of Hemorrhagic Disease, Kenneth M. Brinkhous, Chapel Hill, N. C.
Secondary Hemolytic Disease in Malignancy and Uremia, Ernest E. Muirhead, Dallas, Texas.
Some New Concepts of Thyroid Dysfunction, Henry H. Turner, Oklahoma City.

ILLINOIS

Psychiatric Lecture.—Dr. Francis J. Gerty, professor and head of the department of psychiatry at the University of Illinois College of Medicine, will present "The Use and Abuse of Sedatives and Stimulants" Nov. 2, 8 p. m., at the North Shore Health Resort, 225 Sheridan Rd., Winnetka.

Chicago

Personal.—Dr. Adolph Rostenberg, professor of dermatology, University of Illinois College of Medicine, will serve as moderator for a panel on cutaneous allergy during a course in occupational skin problems for physicians, which will be presented by the department of preventive medicine and industrial health, University of Cincinnati, Oct. 10-14.

Hektoen Lecture.—The Hektoen Institute for Medical Research of the Cook County Hospital announces that the second Dr. Ludvig Hektoen Memorial Lecture will be delivered by Prof. Herwig Hamperl, director of the Pathological Institute of the University of Bonn, Germany, on nutrition and disease at 8 p. m. Oct. 12 in the amphitheater of the department of pathology of Cook County Hospital, 1825 W. Polk St., Chicago 12.

Lectures on Cancer.—Northwestern University Medical School will present its annual series of cancer lectures for members of the medical profession on Wednesdays, 5-6 p. m., Oct. 12-Nov. 23, in the auditorium of the Veterans Administration Research Hospital, 333 E. Huron St. Dr. William B. Wartman, chairman, department of pathology, Northwestern University Medical School, is coordinator of the lectures. The programs for October are as follows:

Oct. 12, Pathology of Cancer of the Lung Correlated with Diagnosis, Treatment and Prognosis, Lauren V. Ackerman, St. Louis.
Oct. 19, Comparison of Adult, Embryonic, and Cancer Tissues, Harry S. N. Greene, New Haven, Conn.
Oct. 26, Studies on the Mechanism of Hydrocarbon Carcinogenesis, Charles Heidelberger, Ph.D., Madison, Wis.

Fire Prevention Week.—During Fire Prevention Week, Oct. 9-15, 16 hospitals that have received emergency training from the Fire Prevention Bureau will participate in a special program, in cooperation with the Chicago Hospital Council, Greater Chicago Safety Council, the Program Committee, and the Fire Prevention Bureau. Demonstrations will include fire escape drills and fire emergency demonstrations. A demonstration on a fireboat, scheduled for 11 a. m. Thursday, will be followed by an award luncheon and theater party.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

Robert A. Black Lecture.—Dr. Lewis Thomas, professor of pathology, New York University School of Medicine, will deliver the third Robert A. Black Lecture, "The Origin and Nature of Fibrinoid," at La Rabida Jackson Park Sanitarium Oct. 14, 12 noon, as part of the staff scientific meeting, which begins at 10 a. m. All physicians are invited.

Orthopaedic Society Meeting.—The Chicago Orthopaedic Society will hold a meeting at the Palmer House Oct. 14 in private dining room 17. The following program will be presented at 8 p. m.:

Studies on the Use of Cultured Calf Bone in Human Bone Grafts—A Complete Presentation of This Subject, Using Motion Pictures and Photomicrographs, E. J. Tucker, Houston, Texas.

The Antigenicity of Homogenous and Homologous Bone Grafts—Results of Histological Study of Bone Grafts and Host Response in Immunologically Prepared Animals and Control Animals, William F. Enneking, Chicago.

Immunology of Bone Transplants—Studies of a Host Rejection to Bone Grafts and Experimental Attempts to Control This Inflammatory Response, Michael Bonfiglio, Iowa City.

Drs. C. Howard Hatcher, Chicago, and Charles F. Gregory, Indianapolis, will discuss the papers. Cocktails, 6 p. m., and dinner will precede the program. All physicians are cordially invited.

Joint Meeting and Heart Clinic.—The Englewood, Jackson Park, South Chicago, South Side, and Stock Yards branches of the Chicago Medical Society and the Chicago Heart Association will hold a joint meeting Oct. 12, 2-6 p. m., at the University of Chicago Clinics, pathology 117 (amphitheater), 950 E. 59th St. (Phone: MIdway 3-0800). A cardiac clinic conducted by faculty members of the University of Chicago School of Medicine will include: "A Case of Rheumatic Heart Disease" (discussion opened by Dr. Albert Dorfman); "A Case of Refractory Congestive Failure" (discussion opened by Dr. Robert G. Page); "A Case of Combined Lung Failure and Heart Failure" (discussion opened by Dr. Robert H. Ebert); and "A Case of Mitral Valvulotomy" (discussion opened by Dr. Richard J. Jones and Dr. William E. Adams). Dr. Wright R. Adams and Dr. George V. LeRoy will preside. All physicians are welcome.

LOUISIANA

Dedication of the Hutchinson Building.—Dedication of the new 10-story addition to the Hutchinson Memorial Medical Building, which houses the school of medicine at Tulane University, New Orleans, will be held Oct. 13-16. The Thursday dedication exercises will be presided over by Dr. Maxwell E. Lapham, dean of the school of medicine. The principal address will be delivered by Dr. Andrew J. Warren, former director of the division of medicine and public health, Rockefeller Foundation, New York. Other speakers include Dr. Cassius J. Van Slyke, associate director, National Institutes of Health, Bethesda, Md.; Joseph M. Jones, LL.B., president of the Tulane board of administrators; Rufus C. Harris, LL.D., Tulane president; Dr. William W. Frye, dean of the Louisiana State University School of Medicine; and the Rev. Sherwood Strobel Clayton, rector of Grace Episcopal Church. At 2 p. m. a panel on medical education will be held under the chairmanship of Dr. Clifford G. Grulee, New Orleans. Participants will include Dr. Lester J. Evans, New York; Dr. Granville A. Bennett, Chicago; and Dr. John W. Patterson, Cleveland. On Friday scientific sessions will be held on medicine, pathology, psychiatry and neurology, microbiology, and pharmacology. Sunday sessions will feature programs and demonstrations to be staged by faculty members of all departments of the school. Open house and a reception will be held from 3 to 5 p. m., including a tour of the building and inspection of exhibits and demonstrations. The public is cordially invited.

MINNESOTA

Society News.—A joint meeting of range and county medical societies, Oct. 13 at the Androy Hotel in Hibbing, will have as guest speaker Dr. George A. Hellmuth, chief of cardiology, Marquette University School of Medicine, Milwaukee, whose topic will be "Diagnosis and Treatment of Serious Cardiac Arrhythmias."

NEW YORK

County Society Meeting.—The monthly meeting of the Broome County Medical Society will be held Oct. 11, 8:45 p. m., at Binghamton City Hospital, Binghamton. Mr. Richard M. Stalvey, administrative assistant, Bureau of Investigation, American Medical Association, Chicago, will deliver a paper entitled "Beware of Gadgets That Cure."

Society News.—The Medical Society of the County of Erie will be the guests of the Pfizer Laboratories of Brooklyn at a dinner party and lecture in the ballroom of the Hotel Statler in Buffalo Oct. 10. Sir Harold Scott of London, who was head of Scotland Yard for eight years, will discuss "Scotland Yard at Work." The dinner meeting and lecture will be preceded by a cocktail party at 6:30 p. m.

New York City

Personal.—Dr. Philip H. Sechzer was recently appointed assistant professor, department of anesthesiology, New York University Postgraduate Medical School.——Dr. Harry M. Zimmerman, chief, laboratory division, Montefiore Hospital, recently went to Israel to discuss with officials of the two organizations building plans for the new medical school to be incorporated in the $12,500,000 Hadassah-Hebrew University Medical Center. En route, Dr. Zimmerman read a paper on brain tumors before the International Congress of Neuropathology in London, England.——Dr. Leonard H. Schuyler has been appointed an assistant medical director of the American Heart Association, where he will aid in administration of the research support and professional education programs.——Dr. Arthur Alexander Knapp was recently invited to be a guest at the global strategy discussions at the U. S. Naval War College at Newport, R. I.

Annual Academy Fortnight.—The 28th annual Graduate Fortnight of the New York Academy of Medicine will be concerned with "Problems of Aging." The meetings, Oct. 10-21, will be held at the academy, 2 E. 103rd St. The following panel meetings have been scheduled: Aging and Atherosclerosis; Everyday Problems in the Care of the Aged; Management of Cardiovascular Renal Problems in the Aged; Management of Prostatic Obstruction; Public Health Aspects of Aging; and Problems of Infectious Diseases and Their Therapy in the Aged. The afternoons will be devoted to hospital clinics. The opening address will be delivered Oct. 10, 8:30 p. m., by Dr. Edward J. Donovan, president of the academy, after which the Ludwig Kast Lecture, "What Is Aging?" will be delivered by Albert I. Lansing, Ph.D., professor of anatomy, Emory University School of Medicine, Emory University, Ga. The evening session Oct. 11 will open with presentation of "Arthritis in the Elderly Patient" by Dr. Joseph J. Bunim, clinical director, National Institute of Arthritis and Metabolic Diseases, Bethesda, Md. The Wesley M. Carpenter Lecture, "Some Physiological Aspects of Aging," will be delivered Oct. 12, 8:30 p. m., by Nathan W. Shock, Ph.D., chief section on gerontology, National Heart Institute, Bethesda, Md., and of the Baltimore City Hospitals. The evening session Oct. 13 will be devoted to a panel meeting on cerebrovascular disease with aging and the evening session Oct. 14 to a panel meeting on problems of retirement. During the second week the Harlow Brooks Lecture, "The Nature of the Response to Stress with Aging," by Dr. James L. Whittenberger, professor of physiology, Harvard School of Public Health, Boston, will open the Monday evening session. On Thursday evening there will be a panel meeting, "Gonadel Function and Involution in Man—and Related Practical Management" and on Friday evening a panel meeting, "Disorders of the Special Sense Organs Associated with Aging: Their Recognition and Treatment."

UTAH

Health Commissioner Sought.—Dr. James Z. Davis, Salt Lake City, who is serving as chairman of the state board of health, has been appointed to coordinate operations of the state health department in the absence of a health commissioner. A special committee, headed by Dr. Charles Ruggeri Jr., Salt Lake City, is continuing its search for a commissioner to replace Dr. George

A. Spendlove, who resigned to become assistant director of public welfare for the state of Washington. Assisting Dr. Davis is Dr. Joseph P. Kesler, assistant public health director and director of the state children's health center at Fort Douglas, who has been appointed active director of the department.

WEST VIRGINIA

Society News.—The annual meeting of the West Virginia Heart Association will be held in the Hotel McLure in Wheeling Oct. 13. A wet clinic session is scheduled at the Wheeling Hospital nurse's home at 10 a. m. The scientific session at the McLure at 2 p. m. will be followed by the annual business meeting. A social hour at 6 p. m. will precede the annual dinner.

GENERAL

Nominations for Lederle Awards.—The closing date for nominations for Lederle Medical Faculty awards to be made during the academic year 1956-1957 is Oct. 31. Nominations will be received from deans of medical schools or, with their approval, from the heads of preclinical departments of medical schools in the United States and Canada and should be addressed to Office of the Secretary, Committee for Lederle Medical Faculty Awards, Pearl River, N. Y., where information may be obtained. The awards will be announced on or before Jan. 15, 1956.

Meeting on Cerebral Palsy.—The American Academy for Cerebral Palsy will hold its annual meeting at the Claridge Hotel in Memphis, Tenn., Oct. 10-12 under the presidency of Dr. Lenox D. Baker, Durham, N. C. The meetings are open to members of the medical and allied professions. The program will include instructional courses in the various phases of cerebral palsy as well as a formal program. Those wishing to attend may obtain an invitation on request to Dr. Robert A. Knight, Secretary-Treasurer, 869 Madison Ave., Memphis 3, Tenn.

Oak Ridge Traveling Lecture Program.—During the academic year 109 scientists from Oak Ridge, Tenn., will make available their services as lecturers to colleges and universities, particularly to those in the Southern region, as part of the Atomic Energy Commission's program of disseminating information to institutions of higher education. The Oak Ridge scientists will travel on request to university campuses under the Oak Ridge Traveling Lecture Program, a joint activity of the Oak Ridge National Laboratory and the Oak Ridge Institute of Nuclear Studies. The speakers, their topics, touching virtually every field of scientific endeavor, and instructions on request for lecturers are listed in the brochure, which may be obtained by writing: Chairman, University Relations Division, Oak Ridge Institute of Nuclear Studies, P. O. Box 117, Oak Ridge, Tenn.

Fellowships for Women.—The American Association of University Women will offer 28 fellowships to American women for advanced study or research during the academic year 1956-57. In general, the $2,000 fellowships (18 unrestricted; 2 for study outside the United States; 1 for research in chemistry, physics, or biology) are awarded to young women who have completed residence work for the Ph.D. degree or who have already received the degree; the $2,500-$3,500 awards, all unrestricted, are given to more mature scholars. Applications must reach the association's office in Washington, D. C., by Dec. 15, 1955. For information, address the Secretary, Committee on Fellowship Awards, American Association of University Women, 1634 Eye St., N. W., Washington 6, D. C. American women are eligible for a number of international fellowships contributed by the association, which are awarded by the International Federation of University Women. The successful candidate must study outside her own country, but there is no restriction as to subject.

Rhinologic Society Meeting.—The annual meeting of the American Rhinologic Society will be held at the Palmer House, Chicago, on Oct. 8. Dr. Maurice H. Cottle, Chicago, president, will deliver the address of welcome after the reception and breakfast at 8 a. m. During a symposium on septum surgery, Dr. Walter E. Loch, Baltimore, will present "Submucous Resection Operation: Its Status After 50 Years," and "Submucous Reconstruction Operations" will be presented by Dr. Robert M. Hansen, Portland, Ore. ("Metzenbaum Modifications"); Dr. Walter J. Aagesen, Anderson, Ind. ("Eastern Group Approach"); and Dr. Kenneth H. Hinderer, Pittsburgh ("Total and Subtotal Replacements"). Dr. Ralph H. Riggs, Shreveport, La., will serve as moderator for a panel discussion on the symposium topic, with the symposium participants as panelists. Eight presentations will be delivered by members (time permitting), or be read by title only. At 2:15 p. m., after the luncheon, guest presentations will be delivered by Dr. Robert Gronner, Northwestern University, Chicago ("The Rhinologist's Patient"), and Thomas P. Dougherty, Ph.D., University of Utah, Salt Lake City ("Connective Tissue, Inflammation, and Steroids"). Cocktails and a reception in honor of the Drs. Gronner and Dougherty will be held at the conclusion of the program.

Pathologists Meeting in Chicago.—The ninth annual session of the College of American Pathologists will convene at the Drake Hotel, Chicago, Oct. 9, 10, 11, and 15, under the presidency of Dr. David A. Wood, San Francisco. The sessions will open Monday with a panel discussion, "Medical Care Plans and the Pathologist," followed by panel discussion on "The Joint Commission on Accreditation of Hospitals and the Pathologist." Panel discussions in the afternoon session will be "Medical Photography" and "University Departments and the Private Practice of Pathology." A fellowship hour is scheduled for 5:30 p. m. Tuesday morning will be devoted to a joint symposium, "The Pathologist as Supervisor of the Clinical Chemistry Division of the Hospital Laboratory," presented by the College of American Pathologists and the American Society of Clinical Pathologists, with Dr. Frank W. Konzelmann, Washington, D. C., as moderator. A joint fellowship hour, 6-7:30 p. m., will precede the joint banquet at which the distinguished speaker will be Charles F. Kettering, Sc.D., Detroit. A round-table luncheon will be jointly sponsored by the society and the college Wednesday at 12:30 p. m. Under the same joint sponsorship, workshops (Use of Radioisotopes in the Clinical Laboratory, Ophthalmic Pathology, Medical Writing, and Microbiology) and refresher courses (Histochemistry, Dermal Pathology, Bone Marrow Interpretation, and Cytology) will be presented on Saturday.

Academy of Ophthalmology and Otolaryngology.—The American Academy of Ophthalmology and Otolaryngology will hold its 60th annual meeting at the Palmer House, Chicago, Oct. 9-14. All members and guests are invited to a reception honoring Dr. and Mrs. Alan C. Woods, Baltimore, and Dr. and Mrs. Philip E. Meltzer, Boston, Sunday, 4:30 p. m. The honor guest, Sir Norman Gregg, Sydney, Australia, will give an address. The following symposium, "The Uses and Abuses of the Corticosteroids in Ophthalmology and Otolaryngology," will be presented:

General Considerations, Rachmiel Levine, Chicago.
Ophthalmologic Aspects, John M. McLean, New York.
Otolaryngologic Aspects, Aubrey G. Rawlins, San Francisco.

Dr. Frederick C. Cordes, San Francisco, will deliver the 12th Jackson Memorial Lecture, "Failure in Congenital Cataract Surgery: A Study of Fifty-Six Enucleated Eyes," before the section on ophthalmology Tuesday at 9:10 a. m. The 11th Wherry Memorial Lecture, "Local Reactions to Infections and Allergies," will be presented by Dr. Edmund P. Fowler Jr., New York, at the meeting of the section on otolaryngology Wednesday at 2:55 p. m. At the closing meeting of the section on ophthalmology Friday morning Sir Norman Gregg will present "The Relationship of Infections in the Early Months of Pregnancy to Congenital Anomalies." The section on otolaryngology has scheduled symposiums on Menière's disease and on errors in the early diagnosis and treatment of cancer in the upper respiratory tract. The section on ophthalmology will present a symposium on diseases of the optic nerve. At its closing session it will hear an invitational address "The Aging of the Retina" by Prof. A. Pillat, Vienna, Austria, and will view "The Effect of Oxygen on Retinal Vessels" and "Goniodialisis," motion pictures, presented respectively, by Dr. Norman Ashton, London, England, and Dr. Olga Ferrer, Havana, Cuba. Dr. Gunnar Heuser, Montreal, Canada, has been invited to discuss "Stress in Disease" before the opening meeting of the section on otolaryngology Monday afternoon.

Conference on Tuberculosis.—"Tuberculosis, the Job Is Not Done" will be the theme of the 42nd annual meeting of the Mississippi Valley Conference on Tuberculosis at the Hotel Savery, Des Moines, Iowa, Oct. 13-15, under the presidency of Dr. Harold M. Coon, Madison, Wis. The Mississippi Valley Trudeau Society (Dr. Ejvind P. K. Fenger, Oak Terrace, Minn., president), which will have a joint meeting with professional tuberculosis control workers on Thursday, will hold its scientific session Friday when the following program will be presented:

Report on the Present Status of Antimicrobial U.S.P.H.S. Cooperative Study, Harold I. Humphrey, Columbus, Ohio.
Respiratory Diseases Transmitted from Animals to Man, James H. Steele, D.V.M., chief veterinarian, U. S. Public Health Service, Atlanta, Ga.
Fungus Diseases of the Lungs, Norman F. Conant, Ph.D., Durham, N. C.
Bilateral Resection for Pulmonary Tuberculosis, Joseph W. Gale, Madison, Wis.
Pulmonary and Associated Problems in the Aging Population, Martin J. Fitzpatrick, Kansas City, Kan.
Acute Respiratory Diseases—Studies of Recently Identified Respiratory Viruses (Clinical and Epidemiological), William S. Jordan, Cleveland.
Chronic Suppurative Pulmonary Diseases, Medical: Oscar Bigman and Nicholas H. DeJanney, Detroit; Surgical: Hiram T. Langston, Chicago.
Pulmonary Physiology in Clinical Practice, Steven M. Horvath, Ph.D., Iowa City.
Inhalation Therapy in Pulmonary Diseases, Arthur M. Olsen, Rochester, Minn.

Dr. Walter L. Bierring, Des Moines, will preside at a joint evening session about "World Health Problems and Tuberculosis," for which the speakers will be Dr. John D. Steele, immediate past-president, American Trudeau Society, and chief of surgery, Veterans Administration Hospital, San Fernando, Calif., and Dr. Henry Van Zile Hyde, chief of division, international health, U. S. Department of Health, Education and Welfare, Washington, D. C. The Iowa Academy of General Practice will grant five hours of informal credit to physicians attending the day-long medical meeting on Friday.

Clinical Fellowships in Radiation Therapy.—The American Cancer Society Clinical Fellowships in Radiation Therapy are offered in 1956-1957 to qualified graduates in medicine who have already received thorough basic training in the principles and practice of radiation therapy and who desire to spend additional periods of training in that specialty at certain clinics in the United Kingdom, the Scandinavian countries, and France. Fellowships are available to citizens of the United States under 40 years of age who are graduates of recognized medical schools in the United States and who have previously received training in therapeutic radiology acceptable to the American Board of Radiology as credit toward certification. In the selection of applicants, priority will be given to physicians who (1) are already certified by the American Board of Radiology, (2) who have completed the required training in preparation for board examinations but who have not yet taken the examinations, and (3) those who, while intending to complete board requirements and take the examinations, are still in the training period. The annual stipend for fellows in radiation therapy is $4,500, including travel. American Cancer Society fellows in radiation therapy may choose to spend the entire fellowship year in one institution or to divide the time between two or more; in the latter event, however, at least eight months must be served in a single institution in order that a reasonable measure of practical experience rather than observation only may be assured. Candidates will file three letters of recommendation with their application. Further information and application forms may be procured from the American Cancer Society, Inc., Professional Education Section, 521 W. 57th St., New York 19.

Medical Research Fellowships.—The division of medical sciences of the National Academy of Sciences-National Research Council is accepting applications for postdoctoral research fellowships for 1956-1957. These awards are designed to offer research experience for promising individuals who look forward to investigative careers rather than to provide practical experience in the clinical field. Ordinarily fellowships are not granted to persons over 35. The following programs are announced:

Fellowships in Cancer Research: Awarded by the American Cancer Society on recommendation of the committee on growth of the division of medical sciences and available to citizens of the United States for study in all branches of the biological, chemical, and physical sciences and of clinical investigation applicable to the study of growth, typical or malignant.
British American Exchange Fellowships in Cancer Research: Awarded by the American Cancer Society on recommendation by the committee on growth to citizens of the United States for advanced study in Great Britain in specialized fields pertaining to the problem of growth; similar fellowships are awarded by the British Empire Cancer Campaign to young British scientists for research in the United States.
Fellowships in the Medical Sciences: Supported by the Rockefeller Foundation and administered by the medical fellowship board of the division, these awards are open to citizens of the United States and Canada who expect to devote themselves to research in the basic medical sciences.
Fellowships in Tuberculosis: Administered by the medical fellowship board under a grant from the National Tuberculosis Association and designed to promote the development of investigators in fields related to tuberculosis, they are open to citizens of the United States who are graduates of American schools.
Fellowships in Radiological Research: Administered for the James Picker Foundation by the division's committee on radiology, appointments, not limited to citizens of the United States, are open to candidates seeking to gain research skills leading to investigative careers in the field of radiology.

Applications for 1956-1957 under any of these programs must be postmarked on or before Dec. 1, 1955. Fellowships are awarded in the early spring. Application blanks may be obtained from the Fellowship Office, National Academy of Sciences-National Research Council, 2101 Constitution Ave., N. W., Washington 25, D. C.

LATIN AMERICA

Pan-American Convention.—The fourth General Assembly and the fifth Pan-American Medical Social Convention will be held in Bogota, Colombia, under the auspices of the Colombian government and the Medical Federation of Colombia Oct. 15-22. The official topic for the congress is "Mental Hygiene." Roundtable discussions on cardiovascular surgery, nutrition, and infection have also been scheduled.

FOREIGN

Belgian Congo Needs a Physician.—According to Melville O. Williams Jr., Ed.D., secretary for missionary personnel of the Board of Missions of the Methodist Church, a physician-surgeon is needed to serve mission hospitals in the central Belgian Congo. Applicants should be experienced in general medicine and surgery and be, preferably, under 35 years of age. A married man with children will be acceptable, as there are both elementary and high school facilities. Persons interested in such a three year missionary term, or those knowing of a possible applicant, are asked to contact Dr. Williams, 150 Fifth Ave., New York 11.

Antitrachoma Drives.—Nearly a million school children in Formosa are being treated in a mass campaign against trachoma under the United Nations Children's Fund. The drive, which began in the fall of 1954 after a pilot project revealed that 50% of the 1,300,000 children in schools were infected with trachoma and 25% were infected with other forms of conjunctivitis, is to be completed in a period of 18 months. A health education program is part of the campaign. Similar mass drives against trachoma are being conducted by UNICEF in Morocco, Tunisia, Yugoslavia, Egypt, and Spain. In Morocco it is hoped that half a million people, including 100,000 children, will be reached by the middle of 1956. In Tunisia 218,000 people were treated for eye disease during 1954. A pilot project is in progress in Egypt, where more than 70% of all the blindness is the result of corneal ulceration complicating acute conjunctivitis in childhood. The pilot project includes education in sanitation and an attempt to control infection-carrying insects, especially Musca sorbens, believed to be an important vector.

CORRECTION

Escherichia Coli.—In Stiles and Weir's Clinical Note in THE JOURNAL, Aug. 20, 1955, page 1432, in the 13th line from the bottom of the first column the words "Endamoeba coli" should have been "Escherichia coli."

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

National Conference on Physicians and Schools, Moraine-on-the-Lake Hotel, Highland Park, Ill., Oct. 12-14. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago, Director.

National Medical Public Relations Conference, Hotel Statler, Boston, Nov. 28. Mr. Leo F. Brown, 535 N. Dearborn St., Chicago 10, Director.

American Academy for Cerebral Palsy, Claridge Hotel, Memphis, Tenn., Oct. 10-12. Dr. Robert A. Knight, 869 Madison Ave., Memphis 3, Tenn., Secretary.

American Academy of Dermatology and Syphilology, Palmer House, Chicago, Dec. 3-8. Dr. James R. Webster, 55 East Washington St., Chicago 2, Secretary.

American Academy of Neurological Surgery, The Homestead, Hot Springs, Va., Oct. 27-29. Dr. Eben Alexander Jr., Bowman Gray School of Medicine, Winston-Salem, N. C , Secretary.

American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago, Oct. 9-14. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

American Association of Blood Banks, Palmer House, Chicago, Nov. 19-21. Miss Marjorie Saunders, 3707 Gaston Ave., Dallas 10, Texas, Secretary.

American Association of Medical Clinics, Curtis Hotel, Minneapolis, Nov. 4-6. Dr. Edwin P. Jordan, Box 58, Charlottesville, Va., Executive Director.

American Association for the Surgery of Trauma, Drake Hotel, Chicago, Oct. 27-29. Dr. James K. Stack, 700 N. Michigan Blvd., Chicago 11, Secretary.

American Clinical and Climatological Association, The Homestead, Hot Springs, Va., Oct. 31-Nov. 2. Dr. M. N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

American College of Anesthesiologists, Hotel Statler, Boston, Nov. 4-5. Mr. John H. Hunt, 188 West Randolph St., Chicago 1, Executive Secretary.

American College of Cardiology Interim Meeting, Hotel Claridge, Memphis, Tenn., Nov. 10-12. Dr. Philip Reichert, Empire State Bldg., New York 1, Secretary.

American College of Gastroenterology, Hotel Shoreland, Chicago, Oct. 24-26. Dr. Joseph Shaiken, 33 West 60th St., New York 23, Secretary

American College of Surgeons, Conrad-Hilton Hotel, Chicago, Oct. 31-Nov. 4. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Secretary.

American Dental Association, San Francisco, Oct. 17-20. Dr. Harold Hillenbrand, 222 East Superior St., Chicago 11, General Secretary.

American Heart Association, Yung Hotel, New Orleans, Oct. 22-26. Mr. Irving Hexter, 44 East 23d St., New York 10, Secretary.

American Medical Women's Association, Board Meeting, Netherlands-Plaza Hotel, Cincinnati, Nov. 11-13. Miss Lillian T. Majally, 1790 Broadway, New York 19, Executive Secretary.

American Public Health Association, Muehlebach Hotel and Municipal Auditorium, Kansas City, Mo., Nov. 14-18. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American School Health Association, Hotel President, Kansas City, Mo., Nov. 14-18. Dr. A. O. DeWeese, 515 East Main St., Kent, Ohio, Secretary.

American Society of Anesthesiologists, Hotel Statler, Boston, Oct. 29-Nov. 3. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago 1, Secretary.

American Society of Clinical Pathologists, Drake Hotel, Chicago, Oct. 10-15. Dr. Clyde G. Culbertson, 1040-1232 West Michigan St., Indianapolis, Secretary.

American Society for the Study of Arteriosclerosis, Hotel Sheraton, Chicago, Nov. 6-7. Dr. O. J. Pollak, P.O. Box 228, Dover, Del., Secretary.

American Society of Tropical Medicine and Hygiene, Somerset Hotel, Boston, Nov. 2-5. Dr. John E. Larsh Jr., Dept. of Parasitology, School of Public Health, Chapel Hill, N. C., Secretary.

Association of *American Medical Colleges*, New Ocean House, Swampscott, Mass., Oct. 24-26. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

Association of Life Insurance Medical Directors of America, Hotel Statler, New York, Oct. 19-21. Dr. Henry B. Kirkland, P. O. Box 594, Newark, N. J., Secretary.

Association of Military Surgeons of the U. S., Hotel Statler, Washington, D. C., Nov. 7-9. Colonel Robert E. Bitner, 1726 I St. N.W., Washington 6, D. C., Secretary.

Association of State and Territorial Health Officers, Hotel Washington, Washington, D. C., Nov. 6-12. Dr. Franklin D. Yoder, State Board of Health, Cheyenne, Wyo., Secretary.

Central Neuropsychiatric Association, The Broadmoor, Colorado Springs, Colo., Oct. 20-22. Dr. Hamilton Ford, 112 North Boulevard, Galveston, Tex., Secretary.

Central Society for Clinical Research, Drake Hotel, Chicago, Nov. 4-5. Dr. Robert H. Ebert, 950 East 59th St., Chicago 37, Secretary.

College of American Pathologists, Drake Hotel, Chicago, Oct. 10-15. Dr. Arthur H. Dearing, 203 N. Wabash Ave., Chicago 1, Executive Secretary.

Congress of Neurological Surgeons, Hotel Statler, Los Angeles, Oct. 27-29. Dr. Philip D. Gordy, 1007 Delaware Ave., Wilmington, Del, Secretary.

Delaware, Medical Society of, Delaware Academy of Medicine, Wilmington, Oct. 17-18. Dr. Norman L. Cannon, 621 Delaware Ave., Wilmington, Secretary.

District of Columbia, Medical Society of the, Hotel Statler, Washington, D. C., Oct. 10-12. Mr. Theodore Wiprud, 1718 M St., N.W., Washington 6, D. C., Executive Director.

Eastern Section, American Federation for Clinical Research, Hotel Warwick and College of Physician's Building, Philadelphia, Dec. 2-3. Dr. Charles R. Shuman, Temple Univ. Hospital, Broad and Ontario Sts., Philadelphia 40, Chairman.

Gerontological Society, Sheraton-Belvedere Hotel, Baltimore, Oct. 27-29. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

Gulf Coast Clinical Society, Pensacola, Fla., Oct. 27-28. Dr. Barkley Beidleman, 1750 N. Palafox St., Pensacola, Fla., Secretary.

Indiana State Medical Association, French Lick Springs Hotel, French Lick, Oct. 16-19. Mr. James A. Waggener, 23 East Ohio St., Indianapolis 4, Executive Secretary.

Inter-Society Cytology Council, Statler Hotel, Cleveland, Nov. 11-12. Dr. Paul F. Fletcher, 634 N. Grand Blvd., St. Louis 3, Secretary.

Interstate Post Graduate Medical Association of North America, Municipal Auditorium, Milwaukee, Nov. 14-17. Mr. Roy T. Ragatz, 207 Gay Bldg., Madison 3, Wis., Executive Director.

Medical Society Executives Conference, Boston, Nov. 27. Mr. H. Martin Baker, 1102 South Hillside, Wichita 17, Kansas, Secretary.

Midwestern Section of American Federation for Clinical Research, Thorne Hall, Northwestern University, and Drake Hotel, Chicago, Nov. 3. Dr. Robert J. Glaser, Barnes Hospital, St. Louis 10, Secretary.

Mississippi Valley Trudeau Society, Hotel Savery, Des Moines, Iowa, Oct. 14. Dr. Harold G. Curtis, Sunny Acres, Cuyahoga County Tuberculosis Hospital, Cleveland 22, Chairman, Program Committee.

National Association for Mental Health, Indianapolis, Nov. 4-6. Mr. Robert M. Heininger, 1790 Broadway, New York 19, Director.

Oklahoma City Clinical Society Conference, Oklahoma City, Oct. 24-27. Dr. Charles E. Leonard, 512 Medical Arts Bldg., Oklahoma City 2, Secretary.

Omaha Mid-West Clinical Society, Hotel Paxton, Omaha, Oct. 24-27. Mrs. Anne K. Ramsey, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

Regional Meetings, American College of Physicians:

- Buffalo, N. Y., Oct. 14. Dr. John H. Talbot, 100 High St., Buffalo 3, N. Y., Governor.
- Madison, Wis., Oct. 15. Dr. Frederick W. Madison, 425 East Wisconsin Ave., Milwaukee 2, Governor.
- Louisville, Ky., Nov. 5. Dr. Sam A. Overstreet, 332 West Broadway, Louisville, Ky., Governor.
- Newark, N. J., Nov. 9. Dr. Edward C. Klein Jr., 6 S. Kingsman Rd., South Orange, N. J., Governor.
- Detroit, Dec. 3. Dr. H. Marvin Pollard, 1313 East Ann St., Ann Arbor, Mich., Governor.
- Hot *Springs*, Ark., Dec. 3. Dr. A. A. Blair, 100 S. 14th St., Ft. Smith, Ark., Governor.

Society of Clinical Surgery, Hotel Roosevelt, New Orleans, Nov. 11-12. Dr. Frank F. Allbritten Jr., University of Kansas Medical Center, Kansas City, Mo., Secretary.

Southern Medical Association, Shamrock Hotel, Houston, Texas, Nov. 14-17. Mr. V. O. Foster, 1020 Empire Bldg., Birmingham 3, Ala., Secretary-Manager.

Southern Society of Cancer Cytology, Houston, Texas, Nov. 14-17. Dr. J. Ernest Ayre, 1155 N.W. 14th St., Miami, Fla., Secretary.

Southwestern Medical Association, Westward Ho Hotel, Phoenix, Ariz., Nov. 16-18. Dr. Celso C. Stapp, 800 Montana St., El Paso, Texas, Secretary.

State Medical Journal Conference, Chicago, Nov. 7-8. Mr. Alfred J. Jackson, 535 N. Dearborn St., Chicago 10, Director.

The Constantinian Society, Sheraton-Park Hotel, Washington, D. C., Oct. 26-29. Dr. C. F. Shook, P. O. Box 1035-36, Toledo 1, Ohio, Secretary.

Virginia, Medical Society of, Hotel Jefferson, Richmond, Oct. 16-19. Mr. Robert I. Howard, 105 West Franklin St., Richmond, Executive *Secretary.*

Western Orthopedic Association, The Reef, Honolulu, Hawaii, Nov. 7-10. Dr. Ivar J. Larsen, 1133 Punchbowl, Honolulu 13, Hawaii, Secretary.

Western Society of Electro-Encephalography, Westward Ho Hotel, Phoenix, Ariz., Nov. 10-12. Dr. Sylvester N. Berens, 902 Boren Ave., Seattle, Secretary.

Western Surgical Association, Olympic Hotel, Seattle, Dec. 1-3. Dr. John T. Reynolds, 612 N. Michigan Blvd., Chicago 11, Secretary.

FOREIGN AND INTERNATIONAL

Conference of International Union for Health Education of the Public, Rome, Italy, Apr. 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1^{er}, France, Secretary-General.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Statler, Boston, Mass., U.S.A., Sept. 3-8, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of International Society for Research on Anesthesia, Miami Beach, Fla., U.S.A., Mar. 12-15, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, May 1956. Prof. Umberto Serafini, Largo della Gancia 5, Rome, Italy, Secretary-General.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik, Hamburg-Eppendorf, Germany.

International Academy of Legal and Social Medicine, Plenary Conference, Genoa, Italy, Oct. 13-17. Prof. Domenico Macaggi, Institut de Medicine legale, Universite de Genes, Genes, Italy, President.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Colloquium on Chlorpromazine and Neuroleptic Agents in Psycotherapy, Ste Anne Clinic of Mental Diseases, Paris, France, Oct. 20-22. Prof. Jean Delay, College of Medicine of Paris, 1, rue Cabanio, Paris 14e, France, Chairman.

International Congress Against Alcoholism, Istanbul, Turkey, Sept. 10-15, 1956. For information address: International contre l'Alcoolisme, Case Gare 49, Lausanne, Switzerland.

International Congress of Allergology, Rio de Janeiro, Brazil, S. A., Nov. 6-13. Dr. Bernard N. Halpern, 197 boulevard St. Germain, Paris 7^{e}, France, Secretary General.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress on Diseases of the Chest, Cologne, Germany, Aug. 19-23, 1956. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, U. S. A., Executive Director.

International Congress of Gastroenterology, London, England, July 18-21, 1956. Mr. Hermon Taylor, London Hospital, White Chapel, London E.1, England, Honorable Secretary.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Palmer House, Chicago, Illinois, U. S. A., Sept. 9-13, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of International Society of Bronchoesophagology, Buenos Aires, Argentina, S. A., Oct. 28-29. Dr. Juan Carlos Arauz, Cangallo 4015, Buenos Aires, Argentina, S. A., Secretary General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Prof. P. Delore, 13 rue Jarente, Lyon, France, Secretary-General.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for Physical Therapy, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International General Medical Congress, University of Rosario Medical College, Rosario, Argentina, S. A., Nov. 7-12. Dean Jose Imhoff, Santa Fé 3100, Rosario, Argentina, S. A., Chairman.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

Latin American Congress of Pathology, Mexico, D. F., Mexico, Dec. 11-17. For information address: Laboratorio de Anatomia Patologica, Instituto N. de Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F., Mexico.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P.O Box 672, Cairns, N.Q., Australia, Secretary.

Pan American Congress of International College of Surgeons, Mendoza City, Argentina, S. A., Oct. 22-26. For information address: Secretary, Caseros Av. 2154, Buenos Aires, Argentina, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Medical Social Convention, Bogota, Colombia, S. A., Oct. 15-22. Dr. Leopoldo E. Araujo, Avenida de los Presidentes Num. 506, Apartado 2589, La Habana, Cuba, Secretary.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

Venezuelan Congress of Medical Sciences, Caracas, Venezuela, S. A., Nov. 18-26. Dr. A. L. Briceno Rossi, Apartado 4412, Ofic. del Este, Caracas, Venezuela, S. A., Secretary General.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: Various Centers. April 24-25 (Part II); June 19-20 (Parts I and II); September 4-5 (Part I). Candidates may file applications at any time but they must be received at least six weeks before the date of the examination for which application is made. New candidates should apply by formal registration; registered candidates may notify the board, indicating desired location, date and candidate number. Ex. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 19-21. Sec., Dr. D. G. Gill, State Office Bldg., Montgomery.

Arizona:* *Examination.* Phoenix, Oct. 12-14. *Reciprocity.* Phoenix, Oct. 15. Exec. Sec., Mr. Robert Carpenter, 411 Security Bldg., Phoenix.

Arkansas:* *Examination.* Little Rock, Nov. 10-11. Sec., Dr. Joe Verser, Harrisburg.

California: *Written.* Sacramento, Oct. 17-20. *Oral and Clinical Examinations for Foreign Medical School Graduates.* San Francisco, Nov. 13. *Oral Examination for Reciprocity Applications.* San Francisco, Nov. 12. Sec., Dr. Louis E. Jones, Room 536, 1020 N St., Sacramento.

Colorado:* *Examination.* Denver, Dec. 6-7. Final date for filing application is Nov. 4. *Reciprocity.* Denver, Oct. 11. Final date for filing application is Sept. 12. Exec. Sec., Mrs. Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

Connecticut:* *Regular. Examination.* Hartford, Nov. 8-10. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic.* Derby, Nov. 8-19. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

Delaware: *Examination.* Dover, Jan. 10-12. *Reciprocity.* Dover, Jan. 19. Sec., Dr. Joseph S. McDaniel, Dover.

Florida:* *Examination.* Miami Beach, Nov. 20-21. Sec., Dr. Homer L. Pearson, 901 N. W. 17th St., Miami.

Idaho: *Examination and Reciprocity.* Boise, Jan. 9-11. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Illinois: *Examination and Reciprocity.* Chicago, Oct. 11-13. Supt. of Registration, Mr. Fredric B. Selcke, State House, Springfield.

Indiana: *Examination.* Indianapolis, June. Exec. Sec., Miss Ruth V. Kirk, 538 K. of P. Bldg., Indianapolis.

Iowa:* *Examination.* Des Moines, Dec. 5-7. Ex. Sec., Mr. Ronald V. Saf, State Office Bldg., Des Moines.

Kansas: *Examination and Endorsement.* Topeka, Dec. 7-8. Sec., Dr. Lyle F. Schmaus, New Brotherhood Bldg., Kansas City.

Kentucky: *Examination.* Louisville, Dec. 5-7. Asst. Sec., Mr. R. F. Dixon, 620 S. 3rd St., Louisville.

Maine: *Examination and Reciprocity.* Portland, Nov. 8-9. Sec., Dr. Adam P. Leighton, Portland.

Maryland: *Examination.* Baltimore, Dec. 13-16. Exec. Sec., Miss Hannah A. McCarthy, 1215 Cathedral St., Baltimore 1.

Michigan:* *Examination.* Lansing, Oct. 12-14. Sec., Dr. J. Earl McIntyre, 118 Stevens T. Mason Bldg., Lansing.

Minnesota:* *Examination and Reciprocity.* Minneapolis, Oct. 18-20. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: *Reciprocity.* Jackson, December. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Missouri: *Examination and Endorsement.* St. Louis, Oct. 21-22. Exec. Sec., Mr. John A. Hailey, Box 4, State Capitol Bldg., Jefferson City.

Nebraska:* *Examination.* Omaha, June 18-20. Director, Bureau of Examining Boards, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

GOVERNMENT SERVICES

ARMY

Personal.—Col. Dwight M. Kuhns has been named deputy director of the Armed Forces Institute of Pathology.——Col. Bryan C. T. Fenton has been appointed chief of the supply division in the office of the surgeon general, replacing Col. Jenner G. Jones, who has been assigned to the Armed Services Medical Procurement Agency, Brooklyn, N. Y.——Dr. Theodor Wagner-Jauregg has resigned from his position as chief, medicinal chemistry branch, Chemical Corps Medical Laboratories, Army Chemical Center, Md., and will accept a position as chief of the chemical laboratories of the pharmaceutical firm of B. Siegfried, A. G., Zofingen, Switzerland. Dr. Wagner-Jauregg is one of a group of three scientists who came from Germany in 1948 to work for the Chemical Corps. The other two scientists, Dr. Hans J. Trurnit, Medical Laboratories, and Dr. F. W. Hoffman, Chemical and Radiological Laboratories, have become United States citizens.

ATOMIC ENERGY COMMISSION

Research Contracts Announced by AEC.—Award of 175 unclassified life science research contracts in biology, medicine, biophysics, and radiation instrumentation was announced Sept. 6 by the Atomic Energy Commission. The contracts were awarded to universities and private institutions as part of the AEC's policy of assisting and fostering research and development in fields related to atomic energy as specified in the Atomic Energy Acts of 1946 and 1954. Thirty-three of the awards, each for one year, are new projects. Sixteen are in biology, 15 in medical sciences, one in biophysics, and one in radiation instrumentation. One hundred forty-two contract renewals for one year were awarded to allow for continuation of research already in progress. Seventy-nine of these are in biology, 53 in medical sciences, 8 in biophysics, and 2 in radiation instrumentation.

SELECTIVE SERVICE SYSTEM

Processing of Physicians for Military Service.—The Selective Service System on Sept. 1 issued the following bulletin in order to provide an adequate pool of new graduates classified in 1-A to meet the calls by the armed forces for physicians and dentists during the fiscal year 1956: 1. Those physicians who have just completed their internships and recent graduates of dental colleges should be made available to fill special calls in accordance with the regulations as soon as possible. There should be no need for filling anticipated special calls with any special registrants except those of priorities 1 and 2 and the younger registrants of priority 3. 2. Local boards are requested to expedite the classification and physical examination of priority 1 and 2 physicians and dentists and of the younger physicians and dentists of priority 3. 3. Local boards are also requested to expedite the processing of physicians and dentists toward induction as regular registrants in accordance with the provisions of Operations Bulletin No. 88, as amended.

PUBLIC HEALTH SERVICE

Cancer Information Institute.—The National Cancer Institute will conduct a one day Cancer Information Institute for public and parochial secondary school teachers of general science, biology, chemistry, and physics. The institute will be held on Saturday, Oct. 15, in the clinical center of the National Institutes of Health in Bethesda, Md. The program is planned to be of interest and utility to science teachers. A short introduction to the cancer problem will be presented by three National Cancer Institute staff members. Next will be a description of demonstrations, projects, and experiments that will be capable of reproduction in the classroom for assignment to brighter pupils or for extracurricular science club activities. Luncheon may be had in the clinical center cafeteria. Tables will be marked so that teachers with similar interests may meet with staff research specialists. After lunch, teachers will go in small groups to laboratories to meet with research scientists and technicians, examine the laboratory facilities, and discuss teaching-demonstration problems. The last activity of the day will be a panel discussion on how best to bring cancer information into the year's program of study. General science, biology, physics, and chemistry will be represented on this panel. A question-and-answer period will follow.

Grants for Research in Nursing.—Research grants and fellowships in the field of nursing will be available from the Public Health Service in the fiscal year that began July 1, Surgeon General Leonard A. Scheele announced. A total of $625,000 was appropriated by Congress for this purpose. This program is designed to support investigations into ways and means of improving quality of nursing care, training nurses in research methods applicable to nursing problems, and making better use of the limited supply of professional nurses. The grants in most cases will be made directly to universities, hospitals, health agencies, or professional groups, under whose auspices the research projects will be carried out.

The research fellowships will be offered only to nurses for the purpose of receiving special postgraduate training in research methods. Fellowships may be used for graduate research study in universities or for research training provided by any health agency or research center. To be accepted for a fellowship, a nurse must be sponsored by the university or agency where the training will be given. Applications may be submitted to the Division of Research Grants, National Institutes of Health, Bethesda 14, Md.

VETERANS ADMINISTRATION

Personal.—Dr. Paul M. Ireland, presently director of surgical service in the central VA office in Washington, D. C., has been appointed manager of the VA hospital in Ann Arbor, Mich.——Dr. Claud E. Carter, presently manager of the VA hospital in Fort Bayard, N. Mex., has been appointed manager of the VA hospital at Butler, Pa.——Dr. Charles S. Livingston, presently manager of the VA hospital at Butler, Pa., has been appointed manager of the VA hospital at Batavia, N. Y.

MISCELLANEOUS

New Radiochemistry Laboratory.—A new radiochemistry laboratory for preparing and distributing standard samples of radioactive materials has been established at the National Bureau of Standards. The resources of this laboratory are expected to expedite greatly the bureau's program of radioactive sample distribution. As custodian of the nation's standards of radioactivity, the National Bureau of Standards carries on a broad research and development program aimed at producing the radioactive standards required by the medical, scientific, and commercial users of radioactive materials. The new radiochemistry laboratory is one of six related facilities that have been established at the bureau to provide this service. The other five consist of laboratories for performing alpha-ray measurements, radioisotope standardization, nuclear spectroscopy, radon testing, and gamma-ray measurements. The radiochemistry laboratory is primarily responsible for the preparation, maintenance, and distribution of about 57 different radioactive nuclides and ores. Included in this group are carbon-14, sodium-22, phosphorus-32, cobalt-60, iodine-131, and gold-198. New uses for these and other nuclides in industry, physics, and medical research and therapy have increased tremendously the demand for standard samples of radioactivity. The program of the radiochemistry laboratory is expected to increase steadily as a result of the expanding uses of radioisotopes in medicine and as biological and industrial tracers. Further work is expected on the program to intercompare radioactive standards and methods of measurement with Canada and Great Britain and other countries. It is planned that international standards of a number of nuclides be established, beginning with phosphorus-32 and cobalt-60.

NEW JERSEY: *Examination.* Trenton, Oct. 18-21. Sec., Dr. Patrick H. Corrigan, 28 W. State St., Trenton.
NEW MEXICO:* *Examination and Reciprocity.* Santa Fe, Nov. 21-22. Sec., Dr. R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.
NEW YORK: *Examination.* Albany, Buffalo, New York City and Syracuse, Oct. 4-7. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany.
NORTH CAROLINA: *Reciprocity.* Asheville, Oct. 31. Sec., Dr. Jos. J. Combs, 716 Professional Bldg., Raleigh.
NORTH DAKOTA: *Examination.* Grand Forks, Jan. 4-6. *Reciprocity.* Grand Forks, Jan. 7. Sec., Dr. C. J. Glaspel, Box 228, Grafton.
OHIO: *Reciprocity.* Columbus, Oct. 4. *Examination.* Columbus, Dec. 15-17. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.
OKLAHOMA:* *Examination.* Oklahoma City, June 5-6. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.
OREGON:* *Reciprocity.* Portland, Oct. 13-15. *Examination.* Portland, January. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.
PENNSYLVANIA: *Examination.* Philadelphia, January. Acting Sec., Miss Marguerite G. Steiner, Box 911, Harrisburg.
SOUTH CAROLINA: *Examination.* Columbia, Nov. 7. Sec., Mr. N. B. Heyward, 1329 Blanding St., Columbia.
SOUTH DAKOTA:* *Examination.* Sioux Falls, Jan. 17-18. Exec. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.
TEXAS:* *Examination and Reciprocity.* Galveston, Dec. 1-3. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.
VIRGINIA: *Examination.* Richmond, Dec. 7-9. *Reciprocity.* Richmond, Dec. 6. Final date for filing application is Nov. 21. Address the Secretary, 631 First St. S.W., Roanoke.
WEST VIRGINIA: *Reciprocity.* Charleston, Oct. 10. Sec., Dr. N. H. Dyer, Charleston 5.
WISCONSIN:* *Reciprocity.* Madison, Oct. 21; *Reciprocity and Examination.* Madison, Jan. 10-12; *Reciprocity.* Madison, Spring; *Reciprocity and Examination.* Milwaukee, July 10-12. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., Madison.
ALASKA:* On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.
GUAM: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Sec., Dr. John E. Kennedy, Agana.
HAWAII: *Examination.* Honolulu, Jan. 9-12. Sec., Dr. I. L. Tilden, 1020 Kapiolani, St., Honolulu.
VIRGIN ISLANDS: *Examination and Endorsement.* St. Thomas, Nov. 8-9. Sec., Dr. Earle M. Rice, St. Thomas.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

DISTRICT OF COLUMBIA: *Examination.* Washington, Oct. 24-25. Deputy, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington 6.
FLORIDA: *Examination.* Gainesville, Nov. 5. Sec., Mr. M. W. Emmel, Box 340, Gainesville.
IOWA: *Examination.* Des Moines, Oct. 11. Sec., Mr. Ben H. Peterson, Coe College, Cedar Rapids.
MICHIGAN: *Examination and Endorsement.* Detroit and Ann Arbor, Oct. 14-15. Sec., Mrs. Anne Baker, 410 W. Michigan Ave., Lansing 15.
OREGON: *Examination.* Portland, Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.
SOUTH DAKOTA: *Examination.* Vermillion, Dec. 2-3. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.
TEXAS: *Examination.* Austin and Houston, Oct. 21-22. Sec., Brother Raphael Wilson, 407 Perry-Brooks Bldg., Austin.
ALASKA: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

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*Basic Science Certificate required.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of THE JOURNAL. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, Oct. 10

NBC-TV, 9 p. m. EDT. "Medic" features a story on medicine's fight against asthma and hay fever entitled "A Room, A Boy and Mr. Bodine."

ABC-TV, 9:30 p. m. EDT. "Medical Horizons" reports on an artificial kidney that takes over renal function during acute emergencies associated with kidney shutdown. Telecast remote from Georgetown University Hospital, Washington, D. C., in cooperation with the American Medical Association.

Wednesday, Oct. 12

NBC-TV, 11:30 a. m. EDT. "Medical and Health News with Howard Whitman," a segment of the "Home" program.

Sunday, Oct. 16

NBC-TV, 3 p. m. EDT. "Dr. Spock," featuring Dr. Benjamin Spock, provides information on child care and development.

Monday, Oct. 17

ABC-TV, 9:30 p. m. EDT. "Medical Horizons" goes to University of Pennsylvania School of Medicine for a program on the training of a medical student.

MAGAZINES

The American Weekly, Oct. 9, 1955

"The Case for the Smoker," by William Engle

The author shows "why some noted cancer experts are not convinced by the reports (that there is a cause and effect relationship between cigarette smoking and lung cancer)."

Parade, Oct. 9, 1955

"Children's Ward: No Place for Tears," by John Devaney

A picture-text story of the children's wards at Johns Hopkins Hospital.

Parents' Magazine, October, 1955

"A Baby's Best Friend Is His Doctor," by Paulette Kahn Hartrich

A list of instructions to mother showing what she should do in order to make her doctor's services more valuable.

"The Truth About Miscarriage," by Alan F. Guttmacher, M.D.

A discussion of abortion and its cause. Treatment for chronic aborters reported by the author include dietary instructions plus thyroid, stilbesterol and progesterone, and psychotherapy plus liberal amounts of vitamins B and C.

Woman's Home Companion, October, 1955

"What's It Worth to Keep Your Child Well?" by Milton J. E. Senn, M.D.

"Both doctors and parents are developing a brand-new conception of the health job." The author tells what a doctor looks for during formative years and what he expects of the parents.

Coronet, October, 1955

"Improve Your Sight Without Glasses," by Lawrence Galton

"Miss Clara A. Hackett . . . has added many techniques to increase the effectiveness of the original Bates (Dr. William A. Bates) methods." The article tells of the success of these techniques for improving eyesight and describes some "major" exercises.

Cosmopolitan, October, 1955

"Witch Doctors and Your Health," by George W. Groh

Medicine scouts employed by major pharmaceutical houses are tracking down tribal remedies in Africa and South America. "Some of these drugs are natural medicines which we can take over without essential change. Others are deadly poisons—the weapon drugs of jungle warriors—which we can adapt to purposes quite different from the native use."

"New Help for Your Skin," by Lawrence Galton

The author lists these "new" treatments for skin diseases: fludrocortisone ointment for eczema; beams of high-energy electrons for atopic dermatitis, disseminated neurodermatitis, and exfoliative dermatitis; high-frequency electric current for acne; grenz rays for psoriasis; and procaine as an anesthetic in scar planing.

Saturday Evening Post, Oct. 1, 1955

"Are Patients Human Beings?" by Milton Silverman

Hospital people are finding they must take care of the "whole man" and "provide warmth, comfort and friendship as well as efficiency in American hospitals." The author reports that "smart hospitals are junking traditional but boneheaded customs like 5 a. m. reveille and payment in advance."

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The research fellowships will be offered only to nurses for the purpose of receiving special postgraduate training in research methods. Fellowships may be used for graduate research study in universities or for research training provided by any health agency or research center. To be accepted for a fellowship, a nurse must be sponsored by the university or agency where the training will be given. Applications may be submitted to the Division of Research Grants, National Institutes of Health, Bethesda 14, Md.

VETERANS ADMINISTRATION

Personal.—Dr. Paul M. Ireland, presently director of surgical service in the central VA office in Washington, D. C., has been appointed manager of the VA hospital in Ann Arbor, Mich.——Dr. Claud E. Carter, presently manager of the VA hospital in Fort Bayard, N. Mex., has been appointed manager of the VA hospital at Butler, Pa.——Dr. Charles S. Livingston, presently manager of the VA hospital at Butler, Pa., has been appointed manager of the VA hospital at Batavia, N. Y.

MISCELLANEOUS

New Radiochemistry Laboratory.—A new radiochemistry laboratory for preparing and distributing standard samples of radioactive materials has been established at the National Bureau of Standards. The resources of this laboratory are expected to expedite greatly the bureau's program of radioactive sample distribution. As custodian of the nation's standards of radioactivity, the National Bureau of Standards carries on a broad research and development program aimed at producing the radioactive standards required by the medical, scientific, and commercial users of radioactive materials. The new radiochemistry laboratory is one of six related facilities that have been established at the bureau to provide this service. The other five consist of laboratories for performing alpha-ray measurements, radioisotope standardization, nuclear spectroscopy, radon testing, and gamma-ray measurements. The radiochemistry laboratory is primarily responsible for the preparation, maintenance, and distribution of about 57 different radioactive nuclides and ores. Included in this group are carbon-14, sodium-22, phosphorus-32, cobalt-60, iodine-131, and gold-198. New uses for these and other nuclides in industry, physics, and medical research and therapy have increased tremendously the demand for standard samples of radioactivity. The program of the radiochemistry laboratory is expected to increase steadily as a result of the expanding uses of radioisotopes in medicine and as biological and industrial tracers. Further work is expected on the program to intercompare radioactive standards and methods of measurement with Canada and Great Britain and other countries. It is planned that international standards of a number of nuclides be established, beginning with phosphorus-32 and cobalt-60.

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FOREIGN LETTERS

BRAZIL

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Q Fever.—The first clinical case of Q fever in São Paulo is reported by Dr. L. A. Ribeiro do Valle and his co-workers in *Rev. paulista de medicina* (46:447 [June] 1955). In this patient the onset was sudden with headache, malaise, fever, productive cough, and sharp cutting pain on the left side of the chest. Later the patient complained of diarrhea, vomiting, and abdominal pain. On the 10th day of the disease, at the time of the patient's admission to the hospital, an area of slight dulness, fine crepitant rales, and increased tactile fremitus was observed at the base of his left lung. Roentgenograms taken at intervals of several days revealed the findings of an atypical pneumonia. The cause of the disease was established by serologic tests. A significant increase of the complement-fixing antibody titer for Q fever was shown by testing four patient's blood samples collected during different stages of the illness. The complement-fixing antibody titer for the viruses of the psittacosis-lymphogranuloma venereum group was constant in all the blood samples tested. The cold agglutination test was negative as well as the hemagglutination test for influenza A and B.

ENGLAND

Legal Liability in the National Health Service.—Until the introduction of the National Health Service the courts of England and Scotland held that medical practitioners should accept full responsibility in law for the treatment of their patients. Hospital physicians were not considered servants of the hospital in which they worked and were therefore also held legally responsible for their professional actions. Recently, a number of judgments in the courts has shown that this view has been radically changed. Thus, Lord President Cooper in a decision last year expressed the view that "under the new Act and regulations the obligation on the State is to treat the patient and not merely to make arrangements for his treatment by and at the sole responsibility of independent contractors." Lord Justice Denning, giving judgment in a case involving the professional actions of an orthopedist, said: "Whatever may have been the position of a consultant in former times, nowadays, since the National Health Service Act, the term 'consultant' does not denote a particular relationship between a doctor and a hospital. . . . Whether he is called a specialist or consultant makes no difference. He, like the rest of the staff, is merely carrying out the duties of the Minister." The Central Consultants and Specialists Committee of Scotland has circulated a memorandum to all medical practitioners in Scotland. The memorandum states that the National Health Service, whether by intention or not, has established a state hospital service, the medical personnel of which are now state servants in law. This raises important issues, because physicians entered into contract with the new hospital boards established by the act on the assurance that there would be no change in their relationship with the hospital authorities.

The committee states that it does not consider that hospital boards are likely to want to interfere deliberately with clinical discretion but thinks that they may be compelled to lay down rules or procedure for certain categories of medical staff as a safeguard to compensation claims by patients. To support this view the committee quotes a recent case in which legal liability for damages was assigned to the hospital authority because it had allowed a junior medical officer to give a particular anesthetic, with disastrous results. The committee thinks that any form of control on the part of hospital authorities would hamper routine hospital work and the teaching and practice of medicine in the hospitals. Once any form of control or direction is started it is hard to foresee where it would stop. Hospital records are now no longer secret and confidential. Hospital authorities require for legal purposes that medical records be submitted to their own solicitor before passing them on. At present, this incursion of the state has been limited to the sphere of the hospital, but there is no reason why this doctrine of state responsibility should not be extended to the care of patients treated under the National Health Service outside hospitals. If it did, all physicians under contract with the National Health Service would be servants of the state or of local authorities. The committee has invited the Joint Consultants Committee to endeavor to reestablish in law the previous relationship of hospital physicians to the management of hospitals in which they work. This would involve an approach to the Ministry of Health demanding legislative action. As Parliament would have to be satisfied that a change would not jeopardize a patient's legal right to damages when negligence had been proved, governmental agreement to this change would probably be conditional on all hospital medical personnel belonging to a medical protective society, or some other equivalent insurance, as a condition of employment. Although it is recognized that this almost amounts to trade unionism, its acceptance would seem justifiable. The alternative would be the surrender of professional freedom.

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Alkaloids of Rauwolfia.—The alkaloid reserpine, obtained from Rauwolfia serpentina, has been widely used as a hypotensive agent. Unfortunately, a number of patients receiving reserpine complain of side-effects, such as depression, lassitude, drowsiness, rhinorrhea, and nightmares. Another alkaloid, rescinnamine, has recently been isolated from R. serpentina, and its value in hypertensive patients, particularly with regard to side-effects, has been assessed by Smirk and McQueen (*Lancet* **2**:115, 1955). Preliminary observations suggest that an appreciable number of patients under treatment with reserpine who complained of side-effects were relieved of these symptoms by changing to rescinnamine; however, some of these patients suffered from tenseness, anorexia, and abdominal discomfort and preferred to return to reserpine. There was no important difference between the hypotensive effects of the two alkaloids. The central effects of reserpine have been used by Davies and Shepherd for the treatment of anxious and depressed patients (*Lancet* **2**:117, 1955). These patients fared better than did a control group treated with a placebo. Four patients with severe involutional melancholia were unchanged, and the authors believe that reserpine is unlikely to supersede electroshock treatment as the treatment of choice for severe depressive states.

Illicit Drug Traffic.—Illicit drug traffic in Great Britain is very limited, according to a report from the government to the United Nations. Traffic in opium, which is largely confined to the Chinese, is waning, and there is no evidence of synthetic narcotics being unlawfully diverted from their normal channels. Seizures of marihuana markedly increased last year, when 118 kg. (260 lb.) was confiscated. Marihuana is used in Britain mainly by Africans, West Indians, or Asiatics. Known drug addicts in Britain, with a population of about 50 million, number only 317, of whom 148 are men and 169 women. Of the men 66 were physicians, but of the women only 3. Morphine was the drug of addiction in 65% of the cases of known addiction, pethidine (meperidine) in 16%, and heroin in 17%. Only two firms, both in Edinburgh, are licensed to manufacture heroin. In Canada, with a population of 14 million, the number of drug addicts is 3,212, according to an estimate in the recent report to the senate by the Reid Committee on the traffic in narcotic drugs. Half of the 2,364 "criminal addicts" are in Vancouver, the police department of which has been charged with laxity in administration of the drug laws. There is practically no juvenile addiction in Canada, only 26 of the addicts being under 20 years of age.

Detection of Chromosomal Sex.—The skin biopsy test of chromosomal sex is being used with increasing frequency as an aid to differential diagnosis in errors of sex development. The epidermic nuclei in females contain a mass of sex chromatin, but in the epidemic nuclei of males the corresponding mass is inconspicuous. Moore and Barr of the University of Western Ontario, London, have shown that smears from the oral mucosa can be used for the chromosomal determination of sex (*Lancet* **2**:57, 1955). They claim that difficulty is sometimes encountered in obtaining skin sections showing fine nuclear detail. The preparation of mucosal smears has the advantage of simplicity. Both workers independently examined a series of 140 smears without reference to the sex of the subjects from whom they were obtained. The sex was correctly diagnosed in 100% of cases by both examiners. They claim that smear preparations are easier to obtain and interpret than are skin biopsies.

Settlement Out of Court.—Mr. Justice Pilcher, giving judgment on July 1 in an action against a hospital management committee, suggested that in certain cases it might be advisable for committees to make a small payment to plaintiffs without any admission of liability rather than having experienced physicians "dragged through the courts." On the previous day he had warned against actions taken against individual physicians or hospital management committees for negligence in cases where damages were likely to be small.

Malaria.—Although rife in the 17th century, malaria has disappeared in Great Britain. Malaria-carrying mosquitoes have recently appeared in Gosport, near Portsmouth, and cases of malaria have been reported in the district. Navy, Army, and Air Force medical departments are joining the local health officers to stamp out the threat. Mosquitoes tend to breed heavily in the area because of the prevalence of stagnant or slow-moving waters. Householders have also been warned of the danger and told how to use sprays to keep their numbers down.

SWITZERLAND

Cancer of the Respiratory System.—Dr. M. Pascua, Director-Consultant on Health Statistics, World Health Organization (*Bull. World Health Organ.* **12**:687, 1955), reviewed the mortality statistics for cancer of the respiratory system for the years 1949 to 1952 in 10 European and 5 non-European countries. The levels of recorded mortality from malignant tumors of the respiratory system, for either sex, differ greatly between countries, and the death rate from these causes has risen markedly, mainly in men, in those countries in the course of the four years under study. The author concludes that the divergency between countries may be caused, apart from different age and sex distribution of the populations, by variations in medical facilities, reliability of cause-of-death certification, and perhaps the proportion of population living in urban and rural areas. The rate of increase was much sharper in some countries for men. Women showed in some of the countries no significant increase or no increase at all. This study, even with its limited scope, would not favor the idea that improvements in diagnosis and in reporting causes of death (although these may be factors) is the chief cause of the increase. Also, the drop in mortality from tuberculosis and from some other respiratory diseases may have facilitated the diagnosis of cancer otherwise masked by the symptoms of such diseases. Some real increase in bronchopulmonary cancer has occurred in the last few years, but the reasons for this are not clear. The aging of the male population cannot be made primarily responsible for the increase observed. While this rise has mainly occurred in tumors of the trachea, bronchus, and lung, a similar inference for women is not apparent or clearly substantiated. Mortality from cancer of such accessible sites as the nasal cavities, middle ear, sinuses, and larynx has not increased during this period. The increased mortality from respiratory cancers has generally been concentrated in the age span 40 to 85 years.

International College of Allergists.—At the second meeting of the International College of Allergists in Basel in July, Wolff of New York distinguished three phases in the migraine attack: the vasoconstrictor, the vasodilator, and the edematous. The aura, often a scotoma, is attributed by the author to vasoconstriction of the retina or calcarine cortex. He stated that vasoconstriction can be seen and photographed in the retina, that during this phase the vessels of the bulbar conjunctiva are narrowed and abnormally sensitive to arterenol that is applied locally, and that the scotoma can be relieved temporarily by vasodilator drugs such as amyl nitrite. Vallery-Radot of Paris stated that, during the phase of headache, ergotamine tartrate, by subcutaneous or intramuscular injection, was the most efficacious agent. In doses of 1 mg. it can also be given orally in combination with 100 mg. of caffeine or, if vomiting is troublesome, as a rectal suppository of 2 mg. of ergotamine and 100 mg. of caffeine. Krayenbuhl of Zurich thinks that to prevent attacks dihydroergotamine is the most efficacious drug in patients showing vasomotor instability, while in attacks possibly related to epilepsy, a combination of Mesantoin and caffeine is best.

Storck, Hoigne, and Grossman of Zurich presented a new serologic method for identifying allergens. They had shown previously that an allergen added to a sensitized serum would cause conglomeration of the platelets. They now showed, using a sensitive nephelometer, that adding an allergen to a sensitized serum causes turbidity at certain dilutions of the allergen. They also demonstrated that the capacity of serum to react with the allergen is due to the presence in it of a specific factor that reacts only with the allergen and that dialyzes through cellophane and a nondialyzable, nonspecific factor that is present in the serum of guinea pigs, cows, and horses but is absent from that of rats and rabbits.

Familial Bilateral Nephropathy.—Although the importance of heredity in persons with polycystic kidney, malformations of the kidney pelvis, renal dystopia, and changes in renal form and volume is recognized, the role of this factor has not been pointed out in bilateral medical nephropathy. M. Poli (*Helvet. med. acta* **22**:109, 1955) has studied one family with nephropathy for several years. Of 92 members, 28 living during the period of observation were examined. Albuminuria was a constant finding in 16 (56.9%) and hematuria in 17 (60.8%). Eight surely, and probably 10, had died of this disease. Autopsy of a 20-year-old patient who died of uremia showed that the disease was of a highly atypical nature. It differs from malignant nephrosclerosis in that the vascular lesions are milder and from albuminuric and membranous nephritis in that the basement membranes are not so thick, not to mention the wholly different clinical findings. Anatomically, bilateral medical nephropathy most closely resembles subacute ascending pyelonephritis, except for the lack of pyuria. Thus this family were all affected with a disease of relatively uniform clinical development, always commoner among the men and characterized by the following symptoms: (1) early appearance of slight albuminuria, (2) progressive development of urinopathy with hematuria as the leading symptom, (3) late appearance of hypertension correlating with the severity of the renal lesion, (4) late appearance of nitrogen retention, hyposthenuria, and glomerular filtration insufficiency, and (5) late death from renal insufficiency and uremia.

Pulmonary Staphylococcia.—Among the manifestations of superinfection observed during antibiotic therapy, the mycoses (notably those with Candida albicans) and the staphylococcias are well known. The best known complication caused by Micrococcus (Staphylococcus) pyogenes var. aureus is pseudomembranous enterocolitis. Complications occurring in the lungs have had less attention, despite reports by Jackson and co-workers on the changes in sputum flora in patients treated with the tetracyclines. At a meeting of the Swiss Society of Internal Medicine in Geneva in May, Rentchnick and Wolhers reported a case of this enterocolitis after oxytetracycline therapy. A later development was pulmonary localization producing the findings of a tuberculous cavity. In view of the patient's poor general state, wasting, and fever, this diagnosis was possible but was finally excluded when no tubercle bacilli were found in the sputum and M. pyogenes aureus were found. Intensive erythromycin therapy caused rapid clinical improvement with return of appetite and weight gain. The cavity, however, persisted for eight months. It was no doubt a residual cyst. This case shows that micrococcic lesions have entered on a new era as the result of antibiotic therapy. Visceral and osseous localizations are possible, calling for new skills in diagnosis and treatment. Roentgenograms of the chest must be made in patients with enterocolitis from micrococci.

Rare Form of Hyperthyreosis.—Up to 1938 there was no literature on the repercussions of the acromegalothyroid complex on the gross and microscopic morphology of the skeleton. At that time, independently of one another, Troell of Sweden and Junet of Geneva studied this matter. The Troell-Junet syndrome consists of acromegaly, toxic goiter (usually nodular), diabetes mellitus, and hyperostosis of the cranial vault. So far it has been reported only in women. It seems that a hypophysial adenoma uncomplicated by goiter is incapable of producing the cranial thickening. Hyperthyroidism without acromegaly has shown no other hyperostotic picture than the highly localized one of nebula frontalis. The coexistence of these two affections is common to all the cases reported by Troell, Moore, Davis, and Junet. It is to be expected that the syndrome will appear more frequently in a country like Switzerland, where goiter is endemic, than in countries where it is rare. Microscopic examination of bone tissue shows intense osteogenic activity in the periosteum and endosteum. In a patient recently described by Junet, there was generalized spongy transformation of the skeleton. This finding allows for differentiating between the anabolic effect of the hypophysial growth hormone and a catabolic effect presumably resulting from hypersecretion on the part of the proliferating goiter.

Cortisone for Leukemia.—Present therapy of acute leukemia combines blood transfusions with 200 to 300 mg. doses of cortisone and an antimitotic drug (aminopterine or 6-mercaptopurine). In certain fulminating cases with swift deglobulization and hemorrhage, a drastic increase in cortisone dosage was tried recently. One gram was given, then two, and then up to five. H. Dubois-Ferrière treated a 19-year-old man with acute leukemia with 3 gm. of cortisone a day for eight days consecutively. In 10 days, complete clinical, hematological, and medullary remission was obtained. There is no satisfactory explanation of how this remission could occur unaccompanied by the secondary effects caused by doses 10 to 20 times smaller. There was no fluid retention in this patient, nor was there any disorder of his electrolyte metabolism. Only slight rounding of the face appeared. The long range value of this procedure is not known, but it is a promising treatment for emergencies in acute leukemia (*Méd. & hyg.* **13**:318, 1955).

TURKEY

Cerebral Hemangioma.—In *Tib Dünyasi (Medical World*, vol. 25, no. 4) Polvan and Kerimoglu described a 31-year-old man who complained of intermittent muscular tremors in the left arm and syncope. These were first noted on the day his mother died. The syncope had lasted half an hour and was followed by numbness in his left arm. Since then he had had these attacks four or five times a week when he was worried. Vertigo, headache, and tremor in the arm preceded the attacks. On the day after admission to the hospital he had an epileptic seizure. The onset was marked by tremor in the left hand and arm and passed from the left to the right side of the face; after the epileptic cry he had severe clonicotonic convulsions and loss of consciousness. There was incontinence during the crisis, and the patient did not bite his tongue. He had a positive bilateral Babinski sign. Confused consciousness returned after 20 minutes. On admission the muscle tonus of his left hand was 80% below that of his right. After an attack he had pain, numbness, and tingling in his left arm. Pressure on his fourth cervical vertebra elicited pain and a feeling of warmth in his left arm and hyperesthesia, astereognosis, and dermalaxia in his left hand. He had diapasonic anesthesia and defective orientation. Percussion of the cranium elicited a right parieto-occipital dulness. The patient had difficulty moving his head and he had dysdiadochokinesia of the left hand. His IQ was 50 (Binet-Terman test). The spinal fluid pressure, when seated, was 45 mm. H_2O and when recumbent, 22. Roentgenograms revealed a mass the size of a small orange in the right posterior parieto-occipital region. Several formations pointing in different directions and of different densities were seen in its interior. The right side of the face was slightly less developed than the left. Electroencephalography recorded 20 to 75 μv, 8 to 12 alpha waves, 14 to 20 cps frequency, and 14 to 30 cps μv beta waves. A diagnosis of cerebral hemangioma was made. The patient refused operation.

Quinacrine for Teniasis.—In *Dirim* (vol. 30, no. 7) Özgen and Tartaroglu described how a patient expelled five Taenia saginata after treatment with quinacrine. This 38-year-old woman had been advised to include plenty of meat in her diet because of a history of pulmonary tuberculosis. She was admitted because of hypertension of three years' duration. She also mentioned that she expelled tapeworm segments in her stools. On an empty stomach and by means of a duodenal catheter, bile was removed and 0.9 gm. of quinacrine, dissolved in 150 cc. of distilled water, was directly introduced into the small intestines. After half an hour this was followed by the introduction, again through the catheter, of 30 gm. of magnesium sulfate. Half an hour later the patient expelled five scolexes of T. saginata. The worms measured 2 to 3 m. The authors have used this therapy many times and only once encountered two scolexes in one patient. Introduction of quinacrine through the catheter proved effective in all cases and no toxic reactions were observed.

CORRESPONDENCE

PERCUTANEOUS SPLENOPORTOGRAPHY

To the Editor:—In THE JOURNAL of June 11, 1955, page 478, Dr. T. B. Reynolds, Dr. W. Mikkelsen, and Dr. A. G. Redeker in an article, "Splenic Hemorrhage Following Percutaneous Splenoportography," report their experience on splenoportography employed in three cases. After the percutaneous injection of the contrast medium into the spleen, they have observed in the first case a significant subcapsular hematoma; in the second injection, done during surgery, a brisk bleeding controlled by pressure; and, in the third injection, a significant splenic hemorrhage (1,500 cc. of liquid blood in the peritoneal cavity and a large hematoma distending the splenic capsule) that required a splenectomy. They conclude that the procedure is more hazardous than the reports of the literature indicate and because of the splenic hemorrhage facilities for splenectomy must be available.

I was astonished in reading this article. I have done almost 150 splenoportographic examinations in both normal cases and many different pathological conditions of the spleen, pancreas, and liver. Part of my experience has been published (Catalano, D., and Giardiello, A.: Splenic Venography, *Am. J. Roentgenol.* 73:971-973 [June] 1955; Catalano, D., Giardiello, A., and Ruggiero, A.: Hepatography After Percutaneous Lieno-Portal Venography, *Acta radiol.* 43:285-288 [April] 1955). We have never had a significant complication. In some of our cases, in which surgical procedure was performed after the roentgenological examination, we could find a laceration of the splenic parenchyma at the site of the injection and in very few of them a small subcapsular hematoma or a few cubic centimeters of blood in the peritoneal cavity. Our experience is confirmed by others, including Abeatici and Campi, Leger (more than 200 splenoportographies), Bourgeon and co-worker, Fuld and Irwin, Caroli and Porcher, Sotgiu and co-workers, and Leroux and de Scoville.

Although we must be grateful to Dr. Reynolds and co-workers for their report that will make us more cautious in performing this procedure, we think because of our experience that splenoportography is without serious complications. The value of the examination is very well known and is unquestionable. Of course, like other vascular contrast studies, it must be performed only in selected patients where useful information may be obtained. Another question that must be taken into consideration is the risk of injection of contrast medium into the peritoneal cavity, referred to by Dr. L. G. Rigler and Dr. P. C. Olfelt (Abdominal Aortography for the Roentgen Demonstration of the Liver and Spleen, *Am. J. Roentgenol.* 72:586-596 [Oct.] 1954). This happened to us in some cases without any danger. With a proper technique the peritoneal injection can be avoided, but if it occurs it is without danger.

DINO CATALANO, M.D., Roentgenologist
Surgical Clinic of the University
Naples, Italy.

APPRAISAL OF NEW DRUGS

To the Editor:—In his letter to the Editor, in THE JOURNAL, Aug. 27, page 1547, Dr. Robert C. Batterman is not challenging Dr. Russek but is instead questioning the validity of the scientific method as applied to medicine. The use of controlled, unbiased observations is fundamental in the approach of science and cannot be summarily dismissed by the as yet unpublished observations of Dr. Batterman. If his double-blind controlled studies failed to reveal any significant therapeutic value in any one or more presumably potent drugs, as compared to placebo, it surely indicates the need for further scrutiny of the true value of these drugs under experimental and clinical conditions. Instead of being shocked into concluding that controlled experimentation is valueless, it would seem more rational for Dr. Batterman to have investigated the circumstances that produced double-blind results at variance with accepted clinical experience.

Were his subjects well chosen in terms of symptomatology? Were the circumstances of his experiments arranged adequately to simulate those of the usual patient-physician relationship? Did his experiments provide for a group of patients whose dosage schedules could be adjusted to the responses of the individual subject, while still maintaining double-blind conditions?

In studies of a similar nature we have been performing at Jackson Memorial Hospital since 1953 (data in preparation for publication), we have found that we could simulate the usual circumstances of the patient-physician relationship in the use of therapeutic agents by dividing the subjects of our double-blind study into three groups. At the time of each of a series of patient-interviews, the physician recorded his observations of clinical change, and, in accord with this evaluation, he was provided with the opportunity to advise changes in the frequency and magnitude of dosage of the therapeutic agent in question, which was being administered by injection. His specific recommendations were only carried out in subjects who happened to fall into the third or experimental group. In the first group each patient received injections of inert placebo, and in the second group they received doses that were constant in frequency and magnitude.

If this type of an experiment, performed under strict double-blind conditions, should fail to demonstrate the superiority of a presumably potent drug over inert placebo, any insistence that this drug must still have value can only be classified as cultism and a denial of the scientific method as applied to medicine.

BERNARD D. ROSS, M.D., PH.D.
Department of Physiology
University of Miami School of Medicine
Miami, Fla.

OUTBREAK OF HERPANGINA IN TOKYO

To the Editor:—An outbreak of herpangina occurred in Tokyo from April of this year; over 60 patients have been observed. Many of the cases occurred in several dormitories scattered in Tokyo, which include from about 40 to over 100 households, whereas about 15 cases are sporadic. The clinical picture, throat lesions, clinical course, age distribution, and other features correspond closely with those described in the United States by Zahorsky, Levine, and others; Huebner and others; Parrot and others; and Kravis and others. Clinical and etiological studies are now in progress. Attempts to isolate the causal agent in suckling mice were carried out, and almost all fecal specimens from patients tested were found to contain Coxsackie virus; each of the suckling mice inoculated with fecal specimens from patients developed the typical flaccid paralysis characteristic of Coxsackie virus infection. Those strains isolated seem to belong to group A of Coxsackie virus from the clinical symptoms manifested in suckling mice and the histological picture of infected mice (selectively in muscle). Typing of the isolated viruses has now been carried out by neutralization tests with prototype of a known type of Coxsackie virus. As yet the typing experiments are not finished; one strain, Omura, is identical with Fleetwood strain (A2), and the other one, Mitsuhashi, is identical with Kudo strain, which was recovered from a patient with paralysis in 1952 in Tokyo and is serologically not related to A1, A2, A3, and A4 but belongs to group A. Isolation tests from the healthy contacts and the demonstration of antibodies in paired patients' serums are now in progress.

DR. TSUYOSHI YOKOTA
National Institute of Health of Japan
248, Chojamaru, Kamiosaki, Shinagawa-ku,
Tokyo, Japan.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Treatment of Hypertension with Reserpine (Serpasil) Alone and in Combination with Hydralazine (Apresoline). L. J. Stuppy and J. N. Tober. Angiology 6:253-259 (June) 1955 [Baltimore].

Reserpine (Serpasil), a pure crystalline alkaloid derived from the roots of Rauwolfia serpentina, was used in the treatment of 83 patients with hypertension. The group included 15 men and 68 women, and the ages varied from 34 to 80 years. All degrees of essential hypertension were represented. Two patients had previously undergone sympathectomy, and two had been treated with radioactive iodine for thyroid disease. Complications such as myocardial infarction, hypertensive encephalopathy, cerebral thrombosis, and renal insufficiency existed in some of the patients. Five of the patients also had asthmatic bronchitis, and two had aortic insufficiency with severe systolic hypertension. All were outpatients. The dosage of reserpine ranged from 0.25 to 2 mg. per day. Results appeared to be equally good whether the total daily dose was given at bedtime or in divided doses during the day. Since sufficient data had been collected on all patients prior to treatment, a placebo control series was not considered necessary. Reserpine alone did not produce adequate reduction in blood pressure in 15 of the patients. These patients were given hydralazine (Apresoline) hydrochloride in addition to the reserpine, the daily dose of reserpine ranging from 0.5 to 2 mg. and that of hydralazine hydrochloride from 50 to 800 mg. Reserpine counteracted the tendency of hydralazine hydrochloride to produce tachycardia, and the two drugs acted synergistically in reducing blood pressures. Patients received treatment for a maximum period of 12 months, and the reduction in blood pressure was satisfactory. In patients in whom tachycardia accompanied hypertension, reserpine reduced the pulse rate. Untoward reactions required discontinuation of the drug in only seven patients. Symptoms like drowsiness, looseness of stools, nasal stuffiness, or vertigo were usually so mild that the patients could continue their medication. Studies on the peripheral blood indicated no changes in the hemopoietic system.

Widened Prophylaxis of Thromboembolism with Anticoagulant Drugs in Internal Medicine. E. Scharpff and R. Seitz. Medizinische, no. 27/28, pp. 976-979 (July 9) 1955 (In German) [Stuttgart, Germany].

Between 1951 and 1954, 250 patients with venous thrombosis were admitted to the medical department of a general hospital in Hamburg, Germany, and were treated with anticoagulant drugs for an average of 25 days. Recurrences occurred in six patients soon after discontinuation of the anticoagulant therapy, but there were no recurrences in the course of the therapy. Observations on the authors' patients and reports by other workers culled from world literature suggest that involvement of the other extremity by venous thrombosis can be checked by anticoagulant therapy. Dreaded pulmonary embolism can be prevented, temperature can be restored to normal, and bedfastness can be reduced. A psychological advantage of anticoagulant therapy is the possibility of removing from the patient the fear of pulmonary embolism, a complication that up to now was known to be fatal. With the exception of pulmonary infarction with an initially fatal course, it can be considered as proved that, as a result of anticoagulant therapy, pulmonary embolism is beginning to lose its horror; its mortality has been reduced to an unexpected degree, and, in addition to the prevention of recurrences, the basic thrombotic process can be controlled. The incidence of pulmonary embolism in patients with internal diseases is higher than in surgical patients, and its diagnosis is often more difficult in patients of the first type. Widening of the indications for anticoagulant therapy of pulmonary embolism depends on an extended diagnosis. The deep-rooted belief that pulmonary embolism is an acute condition and that its criterion is sudden death is erroneous. A silent or subacute chronic course may occur in about 82% of the fatal cases. Subicterus; serous, but bilirubin-positive, pleural exudate; tachycardia refractory to digitalis; nausea; short fainting fits; shortness of breath; and slight cough may be observed frequently. Electrocardiographic changes with the phenomenon of acute cor pulmonale in the peripheral leads and acute and subacute cor pulmonale in the thoracic wall leads may be an aid to diagnosis. Certain cardiac patients with "thromboembolic constellations" may require early institution of antithrombotic measures. These constellations may be permanent or only temporary. Removal of edema by the administration of mersalyl may produce an increased viscosity of the blood and slowing of the blood stream, and decreased hepatic congestion may result in an increased tendency to thrombosis caused by an increase in the coagulation-enhancing factors. Early anticoagulant therapy directed at preventing irreversible changes of the heart muscle is indicated in disorders of the coronary vessels for which the term preinfarction (threatened infarction, acute angina pectoris) has been coined. This applies also to other diseases of the heart with a similar severe thromboembolic risk. Carefully planned institution of anticoagulant therapy instead of "treatment with anticoagulants in every case" made it possible to reduce the mortality of cardiac infarction from 41% in 1951-1952 to 16.9% in 1953-1954. Extended use of anticoagulants such as 3-(1-phenylpropyl) hydroxycoumarin (Marcoumar), ethyl biscoumacetate (Tromexan), heparin, and isonicotinic acid-3-sulfonic acid neodymium in 0.7% sodium chloride solution (Thrombodym) seems to be justified by the satisfactory results obtained with these drugs in patients with venous thrombosis, pulmonary embolism, and coronary thrombosis.

Cancer of the Respiratory Tract: Recent Trends in Mortality. E. A. Lew. *J. Internat. Coll. Surgeons* **24**:12-27 (July) 1955 [Chicago].

Statistical data, illustrated with charts and tables, on the death rates from cancer of the respiratory tract in the general population of the United States and among industrial and ordinary policyholders of the Metropolitan Life Insurance Company indicate that during the past 25 years the white male mortality from cancer of the respiratory tract, adjusted for changes in age distribution, increased five times. An increase of this magnitude and rapidity appears greater than can be accounted for solely by better diagnosis, case finding, and reporting, especially as no other site of cancer has shown so large a proportionate increase. The increase is continuing despite the fact that the disease is now more generally recognized. Among white females, mortality from cancer of the respiratory tract, adjusted for changes in age distribution, has only doubled in the past 25 years. If all this increase were due to better detection and reporting, it would be still smaller than the increase in white male mortality. This suggests that a considerable part of the increase in white male mortality from this disease cannot be accounted for in this manner, since it is difficult to see why physicians should be able to diagnose cancer of the respiratory tract more readily in one sex than in the other. The magnitude of the increase in death rates of cancer of the respiratory tract over the past 25 years varied by age, being smallest at ages

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The place of publication of the periodicals appears in brackets preceding each abstract.

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under 45, and greatest at the more advanced ages. The markedly higher death rates from cancer of the respiratory tract among white male industrial policyholders as compared with those for white males in the general population cannot be explained in terms of better diagnostic facilities in urban areas, since white female industrial policyholders residing in the same area showed death rates from cancer of the respiratory tract substantially the same as those for white females in the general population. The reasons for the higher death rates of white male industrial policyholders must rather be sought in some environmental factors. The lower death rates from cancer of the respiratory tract among white male ordinary policyholders, who presumably have access to even better diagnostic facilities than industrial policyholders or white males in the general population, also suggest factors related to environment, occupation, and social class. In this connection, it may be noted that several life insurance studies have indicated somewhat higher than average mortality from cancer of the respiratory tract in such numerically important occupations as painters, roofers and slaters, carpenters and cabinet makers, coppersmiths and tinsmiths, and electricians. The geographical variations in death rates from cancer of the respiratory tract in the general population likewise indicate that some environmental factors may be contributing to produce the higher death rates observed in the most urbanized and industrial states. The high age-adjusted death rates in states such as Louisiana, Florida, and Nevada also appear to require explanation in terms of special factors. There is reasonably convincing statistical evidence that a number of different factors may be implicated in the rise in the incidence of cancer of the respiratory tract. Adequate data are not available to show how much of the rise can be attributed to the effect of specific factors.

Indications and Results of Lung Needle Biopsy. M. Fazio, E. Minetto and R. Garbagni. Minerva med. **46**:1559-1567 (May 30) 1955 (In Italian) [Turin, Italy].

During the last five years the authors examined 455 patients with various conditions of the lungs. In only nine patients did they find it necessary to resort to needle biopsy to establish the diagnosis. These patients' roentgenograms had shown round shadows of the lung near the thoracic wall. Lung biopsy is particularly indicated for this topographic location. The procedure should never be used when the shadow is near the hilus or in areas in which branches of the pulmonary vessels may be injured while it is performed. Nor should it be used in patients with high fever, heart disease associated with stasis of the pulmonary circulation, cardiovascular collapse, recent hemoptysis, the coexistence of bronchopneumonic foci, or the presence of progressive tuberculous lesions or in patients in whom an aneurysm or an Echinococcus cyst is suspected. Eleven lung biopsies were performed on the nine patients. It was possible to establish a diagnosis of primary malignant neoplasm in five, bronchial cyst in one, sequelae of pleurisy in two, and pleural mesothelioma in one. A mild subcutaneous emphysema in the area surrounding the site of the puncture was observed in one patient, a transitory onset of capillary bleeding in two, and a moderate hemorrhage followed immediately by the excretion of purulent matter (evidence that the bronchial drainage had been restored) in one. The authors conclude that lung needle biopsy can be a decisive diagnostic means in peripheral lesions of the lung and the technique of choice in cases in which a diagnosis cannot be reached by the standard means.

Results of Scalene Node Biopsy in Patients with Pulmonary Calcifications. J. E. Johnson Jr. Am. Rev. Tuberc. **72**:91-97 (July) 1955 [New York].

The author performed scalene lymph node biopsy in 50 consecutive male Air Force recruits with pulmonary calcification. The men were also subjected to clinical study and were skin tested with histoplasmin, coccidioidin solution, and purified protein derivative. The place of residence of the recruits and the results of the skin tests indicated that the majority of these calcifications were probably of histoplasmic origin. In five recruits the scalene node biopsy revealed pathological material. From one scalene node a virulent culture of Histoplasma capsulatum was obtained. Two nodes were histologically consistent with sarcoidosis; these nodes were not cultured for histoplasmin. Two nodes showed a nonspecific inflammatory change. Because of the difficulty in prognostic interpretation of results in the relatively small number of cases with abnormal scalene node findings, the author feels that the procedure is not economical for routine evaluation of patients with pulmonary calcifications. It should prove to be a useful procedure when clinically indicated for diagnostic purposes and for further study of histoplasmic infection.

SURGERY

Case of Acromegaly Associated with Thyrotoxicosis: Review of Literature. J. P. Heaney, C. L. James, C. L. Spurr and M. E. De Bakey. A. M. A. Arch. Surg. **71**:279-287 (Aug.) 1955 [Chicago].

In acromegaly, thyromegaly and thyrotoxicosis often coexist to complicate the therapeutic problems as well as the prognosis of the pituitary disorder. Moreover, the clinical picture of disease of these two endocrine organs may be additionally confused by the simultaneous dysfunction of other endocrine glands, notably the pancreatic islet cells. The 29-year-old man whose case is presented was hospitalized in September, 1949. He had first noted enlargement of chest, hands, and feet in 1943. During 1948 headaches, polydipsia, polyphagia, and polyuria developed. In February, 1949, he became sexually impotent. At about the same time he noticed enlargement of the neck, hoarseness, mild dysphagia, and hacking cough. For six months prior to admission he had been troubled by increased intolerance to heat, with excessive sweating, muscular weakness, fatigue, cardiac palpitation, and dyspnea on exertion. He had lost a moderate amount of weight in spite of an increase in appetite. Physical examination revealed the prognathism and enlargement of the hands and feet characteristic of acromegaly. The supraorbital ridge was prominent, and exophthalmos was moderately advanced. The tongue was large. The thyroid was considerably enlarged and nodular. Roentgen-ray therapy to the pituitary was recommended in September, 1949; however, it was decided that the thyrotoxicosis should be treated by a thyroid-blocking agent, and administration of propylthiouracil was begun. The dosage was approximately 200 mg. three times daily. Because of lack of response to the thyroid-blocking agent and because of development of severe exfoliative dermatitis, propylthiouracil therapy was discontinued on Nov. 26, 1949. Administration of strong iodine (Lugol's) solution and roentgen-ray therapy to the pituitary were started at once. The patient's condition was so grave that it was no longer possible to rely upon a single agent. Roentgen-ray therapy was given through three 5 cm. ports, one anterior and two temporal; 2800 r were delivered to each. The patient's condition improved. On Jan. 3, 1950, total thyroidectomy was done. The postoperative course was uneventful. In March, 1954, the patient's condition was still satisfactory. Literature reports support the contention that the hypermetabolism of acromegaly is due not only to possible associated thyrotoxicosis but also to some direct action of the pituitary gland. Various forms of treatment have been used for both the acromegaly and complicating hypermetabolism. In the absence of hazardous pressure symptoms from either the pituitary tumor or the thyromegaly, initial therapy should consist in external irradiation of the pituitary gland. If adequate radiation therapy fails to control the hypermetabolism, total thyroidectomy should be performed after the patient has been prepared with strong iodine solution. Acromegalic patients with laryngomegaly are more likely to need temporary tracheotomy after thyroidectomy than other patients, even in the absence of recurrent laryngeal nerve injury. The presumed fear of progression of acromegaly after thyroidectomy seems unjustified.

Results of Thoracolumbar Sympathectomy for Essential Hypertension: Three-to-Seven-Year Follow-Up of One Hundred Patients. H. A. Zintel, J. A. Mackie, A. M. Sellers and others. A. M. A. Arch. Surg. **71**:215-222 (Aug.) 1955 [Chicago].

Seven years ago the authors subjected a number of patients to thoracolumbar sympathectomy and followed these patients closely. At the present time 100 patients have been followed for from three to seven years, with an average postoperative follow-up of five years and two months. Surgical treatment was employed for the following reasons: (1) because the patients had severe forms of the disease, generally a diastolic blood pressure of more than 120 mm. Hg; (2) because they did not do well on other types of therapy and principally because they showed evidence of progressive vascular damage; and (3) because their status indicated a very poor prognosis. Surgical treatment was refused to patients with azotemia, to those who had had a coronary occlusion or a cerebrovascular accident within three months, and to those who had permanent severe cerebral damage, although 19 of the patients operated on had had strokes and there were 9 others who had had previous cerebral vascular accidents with residual neurological signs at the time of operation. The preoperative status of the patients is recorded in regard to symptoms, retinopathy, cardiac abnormalities, phenolsulfonphthalein excretion, serum blood urea nitrogen levels, average normal urea clearances, and Smithwick grouping. The operative procedure used was slightly more extensive than the procedure described by Smithwick. It is not possible to state whether the better survival rates observed were due to the more extensive resection. The data reported here would indicate that group 4 and 5 patients as well as group 1, 2, and 3 patients are suitable candidates for operation, because the average five year survival rate of group 4 and 5 patients is more than 50%. This is considerably better than the five year survival rate for group 4 and 5 patients not treated surgically. Two operative deaths resulted in the 100 patients. Eighty-five per cent of the living patients consider themselves improved.

Extension of Radical Mastectomy to Include the Internal Mammary Lymph Node Chain. J. A. Urban. West. J. Surg. 63:463-469 (July) 1955 [Portland, Ore.].

The classical radical mastectomy has so far produced the best therapeutic results in cancer of the breast. The author feels that further improvement will be obtained primarily through earlier diagnosis and through early, more radical surgical treatment. The most logical extension of the radical mastectomy procedure is the inclusion of the en bloc resection of the internal mammary node chain, since breast cancer drains primarily into two main lymph node systems, the axillary and the internal mammary chain. A practical technique has been worked out, in which the internal mammary chain is removed en bloc in continuity with the breast, pectoralis muscles, and axillary contents. Closure and stabilization of the defect in the chest wall has been accomplished with a free fascia lata graft. So far this operation has been carried out on 160 patients with only one postoperative death. The internal mammary node chain was found to contain cancer tissue in 36% of the first 150 patients, while the axillary nodes were found to contain cancer tissue in 54% of the patients. Thirteen per cent of the women in whom the axillary nodes were free from cancer were found to have cancer tissue in the median chain of nodes. The author operated chiefly on patients with inner quadrant breast lesions, since these show a greater incidence of metastases in the internal chain of lymph nodes. Early results of this operation have been encouraging. The author feels that this operation is especially indicated for stage 1 and early stage 2 lesions, particularly when the breast lesion presents below the nipple or in the medial portion of the breast. He does not believe that this more radical procedure can save the patient with advanced breast cancer.

Results of Surgical Treatment of Lung Cancer. M. Bérard, E. C. Saubier and G. Maret. Lyon chir. 50:534-546 (July) 1955 (In French) [Paris, France].

A statistical study was made of 131 patients with pulmonary cancer treated surgically between January, 1948, and November, 1954. Among the first 53 excisions there was a mortality of 15 (28%), while among the last 55 (performed after 1951) there were only 4 deaths (7%). The remaining 23 patients had exploratory thoracotomies only. The basic difference between the first and second operative series lies in the anesthetic technique used. In the first series, deep anesthesia under controlled respiration was the cause of several deaths during operation or immediately afterward. In the later series, the light anesthesia used caused no complications, and all the deaths can be attributed to operative accidents. Despite the high proportion of early recurrences of small-cell carcinoma, some significant results were obtained, namely, three five year survivals, one four year survival, and four three year survivals. Of the 108 excisions, 95 were pneumonectomies and 13 were lobectomies. It is logical to perform a lobectomy in any patient in whom the anatomic features of his disease permit and especially in elderly patients, more particularly if they are operated on the right side. The inoperability of a cancer with opened thorax cannot be judged until after the pericardium has been opened. Following this rule, the authors obtained surgically good results in more than 80% of their last 50 patients who underwent thoracotomy. When total excision has been decided on, the so-called expanded pneumonectomy should be used.

Extrapleural Pneumothorax and Thoracoplasty in Extreme and in Hyperchronic Cases. A. Rabino, F. Sacco and A. Gaida. Minerva med. 46:1660-1663 (June 6) 1955 (In Italian) [Turin, Italy].

A comparison between interventions of extrapleural pneumothorax and thoracoplasty performed in patients with severe cases of tuberculosis before and after 1948 indicated that 30% of these operations were performed before as compared with 55% after that year. The antibiotics have made it possible to operate on patients with severe lesions who could not have been subjected to surgery in the preantibiotic era. Of 242 patients operated on by the authors during the last few years, 128 were severe or highly chronic cases. Of these, 46 were improved; the results were good in 58 and poor in 20; and 4 patients died. The rate of complete recoveries was 45% in the advanced cases as compared with 87% in the other cases in which these interventions were performed. Extrapleural pneumothorax gave good results in 64% of the cases whereas with thoracoplasty the results were good in 42% only. A greater number of residual cavities is observed after thoracoplasty. The authors conclude that extrapleural pneumothorax should be preferred to thoracoplasty when operating on patients with severe cases of tuberculosis because it is more useful and less dangerous.

Chondromatous Hamartoma and Pure Chondroma of Lung. I. Novi. Arch. ital. chir. 79:315-336 (No. 4) 1955 (In Italian) [Bologna, Italy].

Three cases of benign cartilaginous formations in the lung are reported. The mass in two patients was endobronchial and was removed by lobectomy. The microscopic structure was typical of a chondromatous hamartoma. The third case was discovered at autopsy in the victim of a traffic accident. The mass was found within the lung parenchyma, and histological studies revealed that the structure consisted exclusively of cartilaginous tissue. The author considered this a pure chondroma of the lung, which he defines as a true neoplasm arising from the preexisting bronchial cartilages. Less than 200 cases of chondromatous formations in the lung have been reported in the world literature. The condition, which is more common in male patients, is found mostly in the lower lobes, often in the central areas, and less frequently in the peripheral areas in close contact with the pleura. In rare instances, these formations, which are generally of a hard, stony, and rubbery consistency, are in direct relationship with a bronchus. Sometimes they develop within a bronchus and are seen in the lumen in the form of a polyp. The microscopic structure is composed of mesodermal, epithelial, and, sometimes, fat elements in a well-defined and uniform architectural pattern. In some instances, only cartilaginous tissue—normal or metaplastic—is present (pure chondroma). Symptoms, except for instances in which the mass is extremely large or in direct relationship with a bronchus, are of little diagnostic help. In instances in which the mass lies within the lung parenchyma, differential diagnosis should be made from hydatid cysts and tuberculomas. The intrapulmonary forms can often be enucleated quite easily; when they cannot, lobectomy and, sometimes, pneumonectomy give excellent results. The clinical roentgenologic, and bronchoscopic findings of endobronchial chondromatous formations are similar to those of bronchial adenoma. These masses can be removed by endoscopy or [illegible] chotomy only if the diagnosis has been confirmed by biopsy; otherwise pulmonary resection is required. A definite preoperative diagnosis of these formations is impossible most of the time.

NEUROLOGY & PSYCHIATRY

Hereditary Combined Neurinomas and Meningiomas. L. M. Davidoff and J. Martin. J. Neurosurg. **12**:375-384 (July) 1955 [Springfield, Ill.].

Von Recklinghausen's disease in the form of multiple neurofibromatosis affecting not only peripheral nerves but cranial and spinal nerve roots has been demonstrated to show marked hereditary tendencies. Even when this disease, unaccompanied by widespread neurinomatosis, manifests itself only in the form of bilateral acoustic nerve tumors, it has been shown to be hereditary. Cushing and Eisenhardt, in their monograph on meningiomas, brought together from the literature reports of cases of multiple meningiomas and of neurinomas and meningiomas occurring in the same patient. The earlier history of one of the two patients cited here had been reported by Cushing. This patient was the father in the father and daughter team presented here. The patients had bilateral cerebellopontine neurinomas combined with meningiomatosis. Bilateral deafness was present in both patients; bilateral acoustic neurinomas were suspected in each. In the father a small tumor nodule in one cerebellopontine angle was found that, in addition to typical whorl formations, also showed areas of palisading suggesting a mixed type of tumor. The rest of his many small and large intracranial neoplasms were typical meningiomas. No postmortem examination was performed in the father. In the daughter a meningioma was removed from the thoracic spinal canal at the age of 15, and at 20 multiple posterior fossa meningiomas were verified at operation. At postmortem examination the undersurface of the dura mater bilaterally was studded with discrete as well as confluent almost countless meningiomas, in addition to which two larger tumors, one in each cerebellopontine angle, were found that histologically were neurinomas but contained whorls in areas suggestive of mixed neurinoma and meningioma in the same tumor, similar to the angle tumor reported in her father.

Electroencephalographic Changes in Antabuse Treatment. E. Pedersen. Ugesk. læger **117**:812-816 (June 23) 1955 (In Danish) [Copenhagen, Denmark].

More extensive use of electroencephalography before the start of Antabuse treatment and during the first weeks of the treatment is thought desirable. Investigations showed that in most cases changes in the electroencephalogram occur during treatment with 0.5 gm. Antabuse daily, both in normal persons and in chronic alcoholics. The changes are manifested by lower dominant rhythm and increased occurrence of low frequencies with increased and varied voltage, so that the curves often present a paroxysmal pattern. In some cases spikes appear and sometimes there are focal changes. The electroencephalographic changes appear to be independent of whether the curves were normal or abnormal before Antabuse treatment and are an expression of the toxic effect on the cerebrum, probably involving both the basal ganglions and cortex. The changes were least marked when low doses were given. The doses should be individualized and probably be set as low as possible. Permanent changes in the electroencephalogram in some cases may point to permanent organic injury. Antabuse lowers the convulsive threshold, as evidenced partly by the occurrence of spontaneous seizures and partly by the fact that in two cases, one of them in a normal person, signs of epileptic seizures occurred on provocation. Caution is urged in treating epileptics with Antabuse.

Epilepsia Tarda: Clinical Analysis. R. Müller. Nord. med. **53**:990-994 (June 23) 1955 (In Swedish) [Stockholm, Sweden].

From 1951 to 1953, 126 patients with epileptic seizures setting in after the age of 30 were treated in the Serafimer Hospital. The neurological status was negative. Neither history nor psychic or physiological examination gave reliable information as to the etiology of the attacks. The cerebrospinal fluid was normal except in one case. In 65 patients the seizures were focal type-generalized seizures with aura, psychomotor seizures, or jacksonian convulsions. Cerebral tumor was established in 14 cases and in three additional cases roentgenologic changes pointed to an expansive process. One of the verified tumors gave no roentgenologic changes; electroencephalographic changes and the clinical picture led to operation. Three patients had aneurysms. Of the 18 patients with jacksonian convulsions, 10 had a tumor or aneurysm. Electroencephalography was done repeatedly in all but 4 cases; focal changes were demonstrated in 38 cases and uncertain in 3, and epileptogenic activity was found in 17 cases. Pneumoencephalography was done in all but the 3 cases in which arteriography had revealed an aneurysm, and carotid angiography was performed in 84 cases, bilaterally in 31 of these. Fifteen of the 16 patients in whom roentgenogram showed an expansive process were operated on, and tumor was verified in 13 cases. Of 20 patients with grand mal only 3 had a tumor. In meningioma clinical analysis was more reliable than electroencephalography. Besides the expansive processes, angiopathy and trauma were the most common causes of late epilepsy. Cerebral angiopathy is difficult to establish and the diagnosis is most often a probability diagnosis.

Treatment of Tuberculous Meningitis with Particular Reference to the Intrathecal Tuberculin Reaction. H. M. Rennie and J. Read. Australasian Ann. Med. **4**:135-140 (May) 1955 [Sydney, Australia].

Rennie and Read describe observations on two patients with tuberculous meningitis, with particular regard to the treatment and the intrathecal tuberculin reaction. They feel that the accumulated evidence favors the abandonment of intrathecal therapy, and they now use the following therapeutic regime for adults: (1) streptomycin, given by intramuscular injection in a dose of 2 gm. per day until a definite response is established, followed by 1 gm. per day for 6 months and 1 gm. twice a week for at least another 6 months; (2) isoniazid, 300 mg. given orally per day for at least 12 months; and (3) corticotropin or cortisone, if any evidence of subarachnoid block appears. The first of their two patients, who was in a very early phase, made an uncomplicated recovery. The second patient had a longer history when she came under treatment, and though her cerebrospinal fluid findings improved slowly, she was still ill and had evidence of increased intracranial tension and commencing subarachnoid block after six weeks of treatment. In view of these findings, it was suggested by a neurological consultant that the intrathecal administration of streptomycin be given a trial. However, she became so much worse under this treatment that it was hurriedly abandoned. Corticotropin and cortisone completely reversed the ill-effects, and her clinical condition improved rapidly. Since that time her progress has been one of steady improvement. With regard to the behavior of the cerebrospinal fluid, the authors point out that Smith and Vollum in 1950 drew attention to the fact that with a regime of intrathecal and intramuscular administration of streptomycin high "spikes" of cells, containing 60% to 90% of polymorphonuclear cells, appeared in the cerebrospinal fluid at about the time when the organisms were disappearing from the cerebrospinal fluid. This common finding was considered to be associated with a chemical irritation of the meninges by the intrathecal administration of streptomycin. However, Swithinbank, Smith, and Vollum found that streptomycin injected into the normal subarachnoid space does not cause any noticeable cellular reaction. On the other hand, by the introduction of tuberculin into the subarachnoid space of Mantoux-positive control patients, they were able to reproduce the spikes of cells, with polymorphonuclear predominance, and a rise in protein content very similar to that seen in tuberculous meningitis treated by the intrathecal administration of streptomycin. They then regarded the cerebrospinal fluid pleocytosis in tuberculous meningitis as due to an endogenous tuberculin reaction set off by the tuberculoprotein of organisms killed by intrathecally administered streptomycin and not to the irritant effect of streptomycin itself. The authors regard the cerebrospinal fluid response in their own cases as a natural endogenous intrathecal tuberculin reaction, the more so since intrathecal streptomycin therapy was not used in one of their patients and only briefly in the second patient. They emphasize the apparent suppressive effect of corticotropin and cortisone.

PEDIATRICS

Studies in Sickle Cell Anemia: V. Sickle Cell Hemoglobin C Disease (Report of Two Cases in Siblings with Clinical and Genetic Observations and a Brief Review of the Literature). R. B. Scott and M. E. Jenkins. A. M. A. Am. J. Dis. Child. 90:35-42 (July) 1955 [Chicago].

The application of genetic, biochemical, and electrophoretic techniques to the study of sickle cell anemia has revealed that the condition is not a simple disease entity but is in reality a hemolytic syndrome that may be separated into specific subtypes depending upon the variety of abnormal hemoglobin present. The designation of sickle cell anemia is reserved for the type in which the genes responsible for sickling are homozygous. Statistically, this is the commonest variety. The second most frequently encountered type of sickle cell disease in American Negroes is apparently sickle cell-hemoglobin C disease and is due to the simultaneous presence in the person of the sickle cell gene and the gene responsible for C hemoglobin. The authors present observations on two siblings with sickle cell-hemoglobin C disease. The patients were Negro boys, aged 12 and 9 years respectively. The mother of these boys carries the sickle cell trait and the father carries the trait of C hemoglobin. One paternal uncle shows C trait, as does one of his three sons. Both boys had symptoms fairly early but have experienced a very mild course. The clinical picture of mild hemolytic anemia, infrequent pains, enlarged spleen, and numerous target cells on peripheral smear in a Negro patient whose blood exhibits the sickling phenomenon should immediately suggest the possibility of sickle cell-hemoglobin C disease. The diagnosis can easily be confirmed by paper electrophoresis. The disease is inherited in the same manner as the commoner homozygous sickle cell disease, with one parent contributing the sickling trait, the other the trait of hemoglobin C. In general, this subtype is milder than the commoner variety; however, cases of exceptional severity have been reported. Awareness of this new hemolytic syndrome is necessary in order to avoid confusion with similar entities. The first patient was thought to have the usual type of sickle cell anemia from the age of 5 to 12 years. The second patient had been considered a sickle cell trait case. Some of the thalassemia-minor-like cases observed in the Negro may represent hemoglobin C trait states (combination of normal and C hemoglobins). The benign hemoglobin C trait has been found to occur in about 2% to 3% of American Negroes. The blood smear may appear normal except for the presence of target cells. Sickle cell-hemoglobin C disease has a fairly characteristic clinical picture, namely, relatively mild crises, erythrocyte sickling, and high incidence of target cells on blood smears associated with an enlarged spleen. A definitive diagnosis can be made by the use of filter paper electrophoresis. Treatment is mostly symptomatic, and blood transfusions are rarely necessary.

Acute and Subacute Terminal Ileitis. Chérigié, Tavernier, Dupas and Raynal. Semaine hôp. Paris 31:2417-2427 (July 6) 1955 (In French) [Paris, France].

The authors performed radiographic examinations of the terminal ileum in 70 children in the active or convalescent stage of various diseases. They concluded that follicular hypertrophy is rare in normal children and that lymphoid hypertrophy of the terminal ileum should be considered a pathological manifestation. Ileocecal localization seems to reflect a primary disease; the authors found that most of their patients with infectious diseases (measles, scarlet fever, angina, or pneumonia) or parasitoses had considerable follicular hypertrophy with enlargement of the aggregate nodules and adenopathy sometimes visible roentgenologically. Many of the patients had a point of tenderness or pain over the appendix; this pseudoappendicitis so often seen before the appearance of an infectious disease is explained by the frequency of the lymphoid hypertrophy. Other diseases that are preceded or accompanied by hypertrophy are tuberculosis of the small intestine, regional ileitis (Crohn's disease), and typhoid. The authors believe that so-called primary mesenteric adenitis and common inflammatory follicular hypertrophy are in reality the same disease. Hypertrophy of the lymph nodes is common to both. The disease appears to be more severe in adults than in children. The differential diagnosis from Crohn's disease is almost impossible at the outset. During epidemics of infectious diseases, radiological examination should be made of patients with appendical pain in order to demonstrate the presence or absence of mesenteric adenitis so that unnecessary surgical intervention may be avoided.

Treatment of the Nephrotic Syndrome with Corticotropin (ACTH) and Cortisone: A Four-and-One-Half-Year Survey of Results with Short-Term Courses. W. Heymann, S. Spector, L. W. Matthews and D. J. Shapiro. A. M. A. Am. J. Dis. Child. 90:22-27 (July) 1955 [Chicago].

Sixty-four children with the nephrotic syndrome, whose ages ranged between 1 and 9 years, were observed by the authors between October, 1949, and April, 1954. The shortest period any child has been followed has been 14 months, and more than 50 have been followed for more than two years. Corticotropin was given by the intramuscular route in four divided doses in amounts of 60 to 80 units per 24 hours, usually for 10 to 12 days. When given intravenously, 15 units were given in 300 ml. of 5% dextrose by slow drip over 8 to 12 hour periods. Cortisone was used orally in doses of 150 to 200 mg. per 24 hours in three divided daily doses for 10 to 12 days. When diuresis occurred or if it failed to be noted by the eighth or ninth day, the dosage of the hormones was gradually reduced over a three to four day period. The 64 children received a total of 189 short-term courses of corticotropin or cortisone. Twelve are probably cured, 19 are in remission, in 16 the disease is still active, and 17 are dead. Diuresis was obtained in 81%. The incidence of diuresis did not significantly differ whether corticotropin was given by intramuscular or by intravenous injection or whether cortisone was used. The average length of remission after corticotropin therapy was 4.2 months and after cortisone, 2.6 months. The incidence of diuresis in patients who ultimately died in renal failure was 53%. Of 13 patients who failed to have diuresis two or more times, 11 have died in uremia. Complications such as azotemia and electrolyte disturbances were infrequent and reversible. Convulsions occurred six times during the period of therapy and were a sign of poor prognosis. Of 17 children who died, at least 14 died in renal failure. Ten of these had no hematuria, azotemia, or hypertension at the time of onset of treatment. This observation suggests that corticotropin or cortisone given in short-term courses does not affect the progression of the glomerular lesion. An ultimate mortality rate of approximately 35% is expected in this series.

A Study of Twins: Blood Groups and Other Data. R. J. Walsh and O. Kooptzoff. Australian J. Exper. Biol. & M. Sc. 33:189-198 (April) 1955 [Adelaide, Australia].

The primary purpose of the present work was to investigate the usefulness of blood groups in distinguishing uniovular from binovular twins. The opportunity was taken to compare differences in weights and lengths of the pairs according to the results of blood grouping, and maternal age and parity were also compared in the two groups. Blood samples were obtained from all twins delivered at the Royal Hospital for Women, Sydney, and at the King George V Memorial Hospital for Mothers and Babies, Sydney. Two or three drops of blood were obtained from a needle prick of the heel and mixed with approximately 1.5 ml. of physiological sodium chloride solution. The red blood cells were washed twice with this solution before use and were tested within 24 hours of collection. Tests were performed on every sample for the A_1A_2BO groups, the MNS system, and with anti-D, anti-C, anti-E, and anti-c of the Rh system. Tests were usually made for the Fy (a) antigen and on some occasions for the P, Le(a), Lu(a), and Kell antigens. However, only the results of the ABO, MNS, and Rh tests are considered in this paper. At the time of the blood groups test, the authors were not aware of the sex of the twins nor of their weight and length. This information, together with details of the maternal age and parity, was obtained later from the hospital records. Each of four factors (sex, ABO group, Rh group, and MNS group) distinguished a number of binovular twins, and each factor had approximately the same value. On the average, a single factor distinguished 34% of the pairs examined. Six different combinations of any two of these factors can be obtained, distinguishing on an average 53% of the pairs. The four combinations of three factors distinguish on an average 64%, while all four factors together distinguish 70%. The percentage of binovular pairs established (1) by sex alone was 30%; (2) by sex and ABO group was 54%; (3) by sex, ABO group, and Rh group was 65%; and (4) by sex, ABO group, Rh group, and MNS group was 72%. From theoretical considerations, it seems probable that the four factors used together distinguish almost all the binovular pairs. Determination of the ovular origin of human twins may be important in studying the susceptibility of genetically similar individuals to physical disorders and to psychotic and neurotic disturbances. In childhood and adult life, physical differences frequently permit recognition of the binovular nature of twins of the same sex, but such differences are usually not apparent in the neonatal period. Furthermore, the anatomy of placentas is sometimes difficult to interpret and is not always decisive.

OPHTHALMOLOGY

Retrolental Fibroplasia in the United Kingdom: A Report to the Medical Research Council by Their Conference on Retrolental Fibroplasia. Brit. M. J. 2:78-82 (July 9) 1955 [London, England].

In October, 1951, when very little was known of the etiology and incidence of retrolental fibroplasia, a detailed investigation was set in train by the Medical Research Council. Premature baby units in hospitals spread throughout the United Kingdom were asked to complete a questionnaire relating to each mother during her pregnancy and to the treatment and development of the baby up to the age of 6 months. Observations were recorded at 17 such units during the period Oct. 1, 1951, to May 31, 1953. During the 20 months of the inquiry, 1,999 babies of 4 lb. (1,800 gm.) or under entered the nurseries, and the 1,095 of them who survived for at least two months form the basis of this report. Of these 1,095 babies, 84 (7.7%) showed evidence of a retinopathy, the criterion being the presence of neovascularization in the fundus, which was found during routine ophthalmoscopy performed at regular intervals on all the children. In 39 of the 84 infants there was a subsequent regression, or return to normal fundi; in 45 there was blindness, implying one or both eyes permanently affected, with almost certain severe loss of vision. It was found that the cause of prematurity and maternal factors other than vaginal bleeding did not influence the subsequent development of the retinopathy. Boys were more often affected than girls; the main reason for this appears to be that they are more immature than girls for a given birth weight. The nurseries showed wide variations in their use of oxygen and, in general, corresponding variations in the incidence of the disease. The use of oxygen predisposed to the development of a retinopathy. Except in two cases, at least five days' treatment with oxygen was required to produce the disease; and the likelihood of a baby getting the disease increased as the treatment with oxygen was prolonged. There are many other variables to be taken into account, but nurseries in which little oxygen was given and which were free from cases of progressive retinopathy did not, on the average, experience survival rates inferior to nurseries using more oxygen. Clinical signs of anoxia at and after birth were associated with a higher incidence of retinopathy, but on the average more oxygen was given to anoxic babies.

Incidence of Retrolental Fibroplasia in England and Wales in 1951. J. T. Boyd and K. M. Hirst. Brit. M. J. 2:83-85 (July 9) 1955 [London, England].

Particulars were obtained from all local authorities in England and Wales of infants born in 1951 having a birth weight of 4 lb. 6 oz. (2,000 gm.) or less and surviving at least two months. The survey provided data on 6,926 infants. The condition of the eyes was ascertained and 127, or 1.83%, of the infants were found to have retrolental fibroplasia. Not a single case of retrolental fibroplasia was found among the 797 infants who were born at home and remained there. This absence of cases among the home infants supports the view that the risk of developing retrolental fibroplasia is closely associated with some factor connected with hospitalization. Applying the specific incidence rates by sex and birth weight observed in the total population of infants to the number of infants in each of the corresponding subgroups of the home population, it was found that as many as seven or eight cases would have occurred among the infants born at home and not transferred to hospital, if they had been subject to the same risks as the whole population. The incidence of retrolental fibroplasia was closely related to birth weight, declining steeply with increasing birth weight. The incidence was higher in males than in females, but this difference may be due to male babies being less mature than female babies of the same weight. Twin babies showed the same incidence as single babies. Considerable regional variability was observed.

Retrolental Fibroplasia: Three Cases in Puerto Rico. G. Pico. Bol. asoc. méd. Puerto Rico 47:288-296 (July) 1955 (In Spanish) [Santurce, P. R.].

Retrolental fibroplasia is the most frequent cause of blindness among infants of certain countries in which the care of premature infants includes prolonged exposure of the infant to oxygen at high concentrations in incubators. The disease develops in 98% of premature infants, weighing approximately 4 lb. (1,800 gm.) at birth and in 2% of infants having normal weight at birth. Usually the disease is bilateral but may be unilateral. The eyes appear normal immediately after birth. Constriction of the retinal vessels may or may not appear in the first three weeks of life of the infant. The disease follows its course in an active period of three months followed by the cicatricial period. The early retinal changes are first clinically noted about the end of the third week. They consist of dilatation and tortuosity of the retinal vessels, edema, hemorrhages, elevation of the retina, and new blood vessel formation, followed by some other changes up to complete detachment of the retina and diffusion of angioblastosis. After this period, permanent damage manifests itself by the presence of opaque masses of detached retina and vascularized fibrous tissue behind the lens. The differential diagnosis is made from retinoblastoma, persistent primary hyperplasia of the vitreous and pseudoglioma, so-called metastatic retinitis, or purulent endophthalmitis. The disease may appear in infants born at full term who did not have oxygen therapy. In these infants, the sudden increase of oxygen from 50% in the arterial blood of the fetus to 90% at birth plus a retinal lability seem to be the cause of the disease, whether the infants are premature or full-term. No cases of retrolental fibroplasia have been reported from Latin American countries and from Puerto Rico, all countries in which incubators are few and the infants are rarely exposed to high concentrations of oxygen. The author reports three cases in Puerto Rican children whom he observed in the course of the last 10 years in the Clinic of Ophthalmology of the University of Puerto Rico. Two of the patients are prematures and one was born at full term and with normal weight. None of the patients received oxygen therapy in the neonatal period. The children are blind with the typical damage of retrolental fibroplasia.

Intermittent Exophthalmos from Orbital Varices. J. A. Sená. Semana méd. 62:805-810 (June 9) 1955 (In Spanish) [Buenos Aires, Argentina].

The subject of this report, a man 24 years old, was normal up to the age of 20, when he began to notice transient exophthalmos of the left eye following any violent movement of the head or physical effort. Exophthalmos disappeared on discontinuation of the effort. The eye was enophthalmic in normal conditions. Acute bending of the patient's head produced exophthalmos of 20 mm. in the left eye, whereas the right eye did not change. The condition disappeared as soon as the head was turned to the normal posture. There was no ocular pain, dilatation of the facial veins, cutaneous or intracranial varices, or supernumerary rib. The eyes and vision were normal. The author states that intermittent exophthalmos is always unilateral and nearly always on the left side (90% of the cases). The condition follows a benign course when orbital varices are uncomplicated. Prophylactic treatment consists of preventing postural changes and physical efforts. Progression of the condition, as shown by recurrences and progressive degree of exophthalmos or ocular pain, calls for medical therapy consisting of perivascular intraorbital injections of sclerosing substances to cause obliterating periphlebitis of the varices. For this purpose, Raverdino's method and technique are of value. During the occurrence of provoked exophthalmos a 4 cm. needle is introduced into the lower wall of the orbit and a perivascular injection of 2 cc. of a solution containing quinine hydrochloride, 4 gm., urethan, 2 gm., and distilled water, 30 cc., is given. The injection is followed by a transient acute pain in the orbit and an acute inflammation of the involved half of the face. This is controlled in two days by application of cold compresses. One injection is sufficient; if it is necessary to administer a second injection, it can be given one week after the first.

THERAPEUTICS

Antiarrhythmic Action of Ambonestyl. V. Lanzoni and B. B. Clark. Circulation Res. 3:335-343 (July) 1955 [New York].

The antiarrhythmic activity of Ambonestyl, 2-diethyl-aminoethyl-isonicotinamide (MC 4112), was compared with that of procaine amide in a series of experiments on dogs. Ambonestyl was shown to be as effective in suppressing experimental ventricular tachycardia following coronary occlusion as procaine amide; pharmacologically, however, it is more specific because (1) it does not depress cardiac conduction, (2) it does not elevate the ventricular electrical threshold, and (3) it produces less hypotension. This last finding is clinically interesting, because the frequency with which procaine amide produces hypotension when administered intravenously limits its usefulness. Comparison of the relative arrhythmia-suppressive potency of the two products indicated that the activity of Ambonestyl was roughly equivalent (on a weight basis) to that of procaine amide; the duration of its action, on the other hand, seemed to be longer. The over-all toxicity of Ambonestyl is less than that of procaine amide. The fact that cardiac conduction is not depressed by Ambonestyl is important, because depression of conduction may occur with the use of both procaine amide and quinidine, especially in patients with intraventricular conduction disturbances. A slight increase in the refractory period following the administration of Ambonestyl was the only effect demonstrated on normal heart tissue. These findings suggest that neither elevation of the ventricular electrical threshold nor depression of cardiac conduction is essential to antiarrhythmic action. Examination of Ambonestyl for other pharmacological actions revealed that it has no local anesthetic, no adrenolytic or sympatholytic, no atropine-like, and no antihistaminic activity. Vagal depressing and ganglionic blocking actions were evident only with large doses (about three times those of procaine amide). Preliminary studies in man, now in process of publication, have so far corroborated these experimental findings.

Effectiveness of Aramine in the Treatment of Shock. J. H. Moyer and H. L. Beazley. Am. Heart J. 50:136-144 (July) 1955 [St. Louis].

Vasopressor agents have proved of value as collateral therapy in shock, not only because they help to restore the blood pressure but because some of these agents have proved effective in improving depressed renal function. Levo-1-(M-hydroxyphenyl)-2-amino-1-propanol, which is known as Aramine, is a synthetic sympathomimetic amine. It has a more prolonged effect than arterenol (norepinephrine). Twenty patients with various types of clinical shock were given Aramine by constant intravenous infusion. The concentration varied from 50 to 200 mg. per liter, depending upon the pressor response. The rate of infusion was varied (between 2 and 6 cc. per minute) as necessary in order to avoid excessive fluid administration. In 4 of the 20 patients, arterenol in concentrations varying from 4 to 16 mg. per liter was used in combination with Aramine in an attempt to maintain a constant blood pressure without administering large amounts of fluid. The other patients were treated alternately with Aramine and arterenol (for shorter periods of time) for comparative purposes. Renal hemodynamic studies were done on several patients using inulin to determine glomerular filtration rate and *p*-aminohippurate to determine renal plasma flow. The patients included 14 men and 6 women, who ranged in age from 23 to 93 years. Shock was due to acute myocardial infarction in three patients, cerebrovascular accident in four, upper gastrointestinal hemorrhage in one, bleeding esophageal varices in two, serum sickness in one, postpartum hemorrhage in one, uremia in three, Weil's disease in one, sickle cell crisis in one, carcinomatosis in two, and anesthesia induction in one. Six of the patients received whole blood transfusions in varying amounts prior to the vasopressor administration. It is believed that these patients probably would have died had not vasopressor therapy been available. Nineteen of the patients had a prompt and satisfactory vasopressor response within 8 to 10 minutes. The unresponsive patient was admitted in shock of approximately two and one-half hours' duration. Despite rapid intravenous administration of Aramine there was no significant blood pressure response, and the patient died 13½ hours later. Vasopressor therapy was continued for from 5 to 231 hours. When the responses to Aramine and arterenol were compared, using each drug alone, it became apparent that on a weight basis Aramine was only about 0.05 to 0.04 as potent as arterenol when administered by continuous intravenous infusion to patients in shock. However, the blood pressure was much easier to maintain at a constant level than with arterenol. Thus it seems to have some advantage over arterenol. No sloughs resulted from its intravenous use. Compromised renal function was improved in that there was an increase in glomerular filtration rate, renal blood flow, and urinary output.

PATHOLOGY

Glomerulotubular Nephrosis Correlated with Hepatic Lesions: III. Production of Acute Glomerulotubular Nephrosis in the Rabbit by Means of Hepatic Surgery. C. N. Crowson, R. H. More and G. Frkovich. A. M. A. Arch. Path. 60:85-94 (July) 1955 [Chicago].

In the second of a series of three reports on glomerulotubular nephrosis with hepatic lesions (reported in the same issue) a close correlation was established between glomerulotubular nephrosis and structural changes in the liver. The hepatic changes consist of acute and chronic lesions and vary from severe fatty metamorphosis, cirrhosis, and acute edema, through all stages of atrophy and minor necrosis to massive hepatic necrosis. The hypothesis is proposed that vasopressor materials accumulate in the systemic circulation during periods of hepatic insufficiency and produce renal ischemia. The correlation is felt to comprise part of the hepatorenal syndrome, and it is recommended that the syndrome, already nebulous and ill-defined, be extended to include these related phenomena. The third report describes an attempt to reproduce experimentally correlated hepatic and renal damage corresponding to the associated hepatic and renal lesions reported in human autopsy material in part 2 of this series. This was done by means of temporary occlusion of the hepatic vasculature in rabbits. The object of this procedure was to produce a state of acute hepatic insufficiency without jaundice. Glomerulotubular nephrosis was found to develop in 90% of these animals. A rather large number of the rabbits used in this investigation (43%) showed preexisting hepatic lesions of varying types and duration. These hepatic changes showed a 95% correlation with degenerative renal changes, causing major reorganization of the experimental groupings. A lesion identical with acute glomerulotubular nephrosis has been produced in two rabbits by direct renal ischemia. The proposed ischemic etiology of glomerulotubular nephrosis has been discussed in the light of the associated hepatic disorders, with the following possible sequence of events: hepatic insufficiency developing in the presence of a variety of lesions; the insufficient liver failing to detoxify some potent vasospastic material in the circulation; and thi agent producing selective arteriospasm in small renal vessels. *The Masson trichrome stain is recommended by the authors for* use in carrying out investigations of acute degenerative lesions of the kidney.

Virilizing Tumors of the Ovary: Anatomopathologic Study. P. Laffargue. Presse méd. **63**:959-961 (June 22) 1955 (In French) [Paris, France].

The author believes that the classic classification of arrhenoblastomas made by Robert Meyer in 1930 should be revised, since it is now established that the ovary normally secretes androgens. Virilizing tumors should be considered on the same basis as feminizing tumors, and it should be acknowledged that they arise from cells whose presence is not abnormal. There are male tumors of the ovary that may be regarded as tumors of the genital blastema. These contain epithelial cords and interstitial cells. Joint or isolated variations in these two types of tissue give rise to the various types of arrhenomas, mixed and pure. The mixed forms are less differentiated and the pure forms have a high degree of maturity; they contain Sertoli or Leydig cells. These pure forms are found in dystrophy or hyperplasia of the ovary in exact correspondence. This shows that the ovary normally has androgenic sources of which the pathological manifestations are hyperplasia and neoplasia, in the same way that it has estrogenic sources that are subject to the same pathological manifestations.

Exfoliative Cytology and Pulmonary Cancer: A Histopathologic and Cytologic Correlation. H. J. Spjut, D. J. Fier and L. V. Ackerman. J. Thoracic Surg. **30**:90-107 (July) 1955 [St. Louis].

Although it is generally accepted that the examination of pulmonary secretions for cancer cells is valuable, the authors attempted to investigate (1) the limitations of this procedure; (2) what information other than the report of positive, suspicious, or negative is gained by cytological examinations. They reviewed 501 cases of patients with histologically proved pulmonary cancers who were admitted to Barnes Hospital between July, 1948, and April 1, 1953. For tissue confirmation of cancer there were 318 bronchial biopsies, 95 other biopsies, 163 pneumonectomies, 35 lobectomies, 126 thoracotomies for exploration, and 35 autopsy examinations. In each of the patients at least one sputum or bronchial washing was studied for cancer cells. Thus, there were 905 sputum examinations for 424 of the cases, and 364 bronchial washings for 343 cases. Many patients had both types of examination. The cytological examinations yielded 243 positive, 53 suspicious, and 205 negative results. Thirty-one and six-tenths per cent of the bronchial washings were positive, and 27.1% of the sputa were positive. On a case basis the over-all percentage of positive reports was 57.8% and with an optimum number of specimens, 76.6%. The optimum number of sputa and bronchial washings for study was found to be three. Of the 318 bronchial biopsies 211 or 66.3% were positive. Only 28% of the positive biopsies were in the operable cases. The lower lobes yielded the highest percentage of positive smears (bronchial washings). The highest percentage of positive sputa was obtained from the left upper lobe. Cytological examinations are of value in the diagnosis of peripheral pulmonary cancers. Lesions 2 to 3 cm. in diameter and those larger than 7 cm. produced the highest percentage of positive smears. Patients with positive hilar and bronchopulmonary nodes yielded a higher percentage of positive bronchial washings than did those with negative nodes. Sputum examinations remained much the same for the two groups. Positive smears were obtained in 56.1% of the operable and 59% of the inoperable cases. With a positive biopsy, the number of operable cases decreased notably. In 59 of the operable cases, the cytology was the only positive tissue examination prior to operation. Thirteen frozen sections (with 11 positive) were asked for in these cases. Thus, 48 of the patients underwent resection with cytology as the sole tissue diagnosis. Typing of the positive smears was 79.3% accurate. Epidermoid carcinomas were correctly typed in 89.2% of instances, undifferentiated carcinomas in 76.2%, and adenocarcinomas in 39.3%. Two bronchiolar carcinomas were accurately typed from the smears.

RADIOLOGY

Tissue Injuries After Roentgen and Radium-Irradiation: II. Clinical Aspects. C. F. Koch. Nederl. tijdschr. geneesk. 99: 1742-1746 (June 11) 1955 (In Dutch) [Haarlem, Netherlands].

This is one of a series of three papers on tissue damage from irradiation, the other two dealing with the radiological and pathological aspects respectively. The clinical aspects reviewed in this paper are based on observations on 80 patients, in 6 of whom carcinomatous degeneration resulted. Often the patient himself is responsible for skin damage from irradiation, in that he fails to admit to a new physician that he previously received irradiation therapy. The author comments on the appearance of the lesions and the changes that they undergo, such as secondary infections and malignant degeneration. He also mentions the long periods that may intervene between the original irradiation and the development of carcinoma; in one of the patients observed by him this interval was 30 years. Irradiation is very damaging in young children, growing bone tissue being particularly susceptible. The author concludes that the number of patients being damaged by irradiation is greater than is generally known. Ray damage has not been restricted to the early era of irradiation therapy, but damage by excessive dosage still occurs today. In the majority of patients in whom the author observed ray lesions irradiation therapy had been given for nonneoplastic lesions such as for hemangiomas, nevi, warts, articular pains, tuberculous lymphomas, and psoriasis. Possibly many patients who were irradiated for neoplastic lesions died before irradiation necrosis became manifest. Nonneoplastic lesions that will respond just as well to treatments other than irradiation should not receive irradiation therapy. Surgical treatment is the only effective treatment for lesions caused by irradiation. Modern plastic surgery produces results that are not disfiguring.

Experiences with Hysterosalpingography. L. Öhlinger. Wien med. Wchnschr. **105**:451-452 (June 4) 1955 (In German [Vienna, Austria].

Hysterosalpingography was performed with the aid of a viscous, water-soluble contrast medium [a diiodide pyridone compound with addition of a surface anesthetic and sodium carboxymethylcellulose (Ioduron S)] in 81 sterile women in the course of 11 years. Of the 81 patients, 47 (58%) had primary sterility and 34 (42%) secondary sterility. The average age of the patients was 32 years. In 29 women tubal obstruction was shown to be the cause of the sterility and in the remaining 52 at least one or both oviducts were patent. Of the 29 women with bilateral tubal obstruction, the tubes were occluded at the uterine end in 8 women (27%), at the isthmus in 5 (19%), and at the ampulla in 15 (50%); peritubal covering was shown in one (4%); and 18 women (22.22%) became pregnant after the hysterosalpingography. These results suggest that a therapeutic effect of hysterosalpingography may be considered besides its diagnostic value.

ANESTHESIA

Effect of Premedication with Chlorpromazine. *O. Oljelund* Nord. med. **53**:734-736 (May 5) 1955 (In Swedish) [Stockholm Sweden].

Laparotomy was done in 200 patients, of whom 100 received premedication according to Gordh, with 50 mg. chlorpromazine given intramuscularly together with an average of 4 mg. of morphine and 0.3 mg. of atropine. The 100 controls received preoperatively an average of 9 mg. of morphine and 0.4 mg of scopolamine, 2 mg. of dilaudid, and 0.3 mg. of atropine It was found that chlorpromazine reduced the amount of barbiturate necessary during anesthesia by 21%; the postoperative course during the first five hours was uneventful; and the frequency of vomiting was reduced by 36% and the amount of analgesics needed by 38%. Hypotension, sometimes associated with nausea, occurred in 10 cases but did not affect the operative or postoperative course.

QUERIES AND MINOR NOTES

TING ACTIVE YEAST DAILY

THE EDITOR:—*A patient is fond of eating active yeast several imes daily and claims that he feels better with this food upplement; however, several years ago active yeast was ound by certain investigators to use up some of the vitamin ontained in the food passing through the intestine. How nuch vitamin is destroyed by active yeast organisms in the ntestine? Is it sufficient to justify the change from active yeast o inactive yeast as a source of essential nutritional elements, r does it make slight difference? Does active yeast reduce ntestinal putrefaction?*

George A. Ury, M.D., National City, Calif.

NSWER.—There is no question but what active yeast inter- es with the absorption of thiamine, not only from the yeast lf but the thiamine supplied in the food. Undoubtedly the ng yeast cells absorb thiamine and prevent its absorption by host. This has been clearly demonstrated in human subjects Garber and co-workers (*J. Nutrition* 38:225, 1949). Whether amine deficiency will be produced due to the consumption of ive yeast will depend on the amount of yeast consumed and v frequently it is consumed. The safest procedure would be process the yeast in such a way as to destroy the vitality of cells. This treatment would also render the other vitamins the yeast available to the body. It is doubtful that a general ement can be made that active yeast reduces intestinal refaction. The intestinal microflora are so complex that erent effects would undoubtedly be obtained under different ditions.

TRASONIC THERAPY

THE EDITOR:—*A veterinarian who has severe bronchial sthma insists on taking ultrasonic sound wave therapy to he chest for his asthma. This I am very reluctant to do in iew of the potentialities of this type of therapy and the parsity of clinical reports on its use in the treatment of sthma. Kindly advise.*

M.D., New Mexico.

NSWER.—There is no rational explanation nor reason to ect, nor are there adequate controlled studies reported to nonstrate, that ultrasonic diathermy is useful in the treatment bronchial asthma. On the other hand, the application of ultra- ic diathermy for therapeutic purposes is contraindicated ut the heart and large autonomic plexus, such as those found he chest.

OPHYLAXIS OF RHEUMATIC FEVER

THE EDITOR:—*Please give recommendations as to drug and losage for prophylaxis of rheumatic fever, both for an acute treptococcic infection and also for long-range seasonal herapy in an individual who is sensitive to both sulfonamides nd to penicillin.*

H. Edward Hengen, M.D., Pattonville, Mo.

NSWER.—In the presence of a definite sensitivity to penicillin the sulfonamides, the use of tetracycline (Achromycin) is icated. However, this drug is less effective than penicillin in dicating streptococci, decreasing antistreptolysin formation, preventing rheumatic fever. The average dose in the treatment of streptococcic infection is 10 mg. per pound of body weight, in four divided doses daily, for two days. This is followed by half the amount for a total of 10 days. For the prevention or prophylaxis of streptococcic infection with Achromycin, 2 mg. per pound of body weight should be given daily and continued to the age of 18, in a child. In patients above the age of 18, it should be continued for at least five years following the last attack.

ACUTE BACTERIAL ENDOCARDITIS

TO THE EDITOR:—*An 11-year-old boy has an interventricular septal defect. In December, 1954, he had mumps, and he never seemed to regain his former health. He was first seen on Feb. 2, 1955, because of malaise and easy fatigue. In addition to the typical Roger murmur and thrill, there was some pallor but no fever. The spleen was enlarged four fingerbreadths below the left costal margin. No petechiae were noted. Laboratory reports revealed the hemoglobin level was 68%, white blood cell count 8,150 per cubic millimeter, and red blood cell count 3,350,000 per cubic millimeter. Two weeks later, although he said he felt a little better, the patient was hospitalized, and examination again was essentially unchanged. His parents stated that for the past day he had run an intermittent afternoon and evening fever, but his temperature was always normal in the morning. Urinalysis was normal and sedimentation rate 12 mm. in one hour. The white blood cell count was 10,200 per cubic millimeter, hemoglobin level 70, and red blood cell count 4,120,000 per cubic millimeter. Differential revealed stab forms 1, segmented cells 42%, lymphocytes 55%, and monocytes 2%. Heterophil and agglutination tests were negative. During 10 days in the hospital, daily blood cultures were obtained, and to date they are all negative. There was a daily afternoon and sometimes evening temperature as high as 102.6, but usually averaging between 100 to 101. When discharged, the patient's sedimentation rate had increased to 28 mm. in one hour and there was a slight change in differential, with 3 stab forms, 51 segmented cells, 42 lymphocytes, and 4 monocytes. He felt better while in the hospital, and it was thought that his spleen decreased slightly in size. Chest x-ray was normal. One week after discharge his hemoglobin level was 70%, red blood cell count 4,160,000 per cubic millimeter, and white blood cell count 14,550 per cubic millimeter. He no longer ran an afternoon temperature but did have a low-grade temperature elevation each evening. No antibiotics have been given. The patient continues to gradually feel a little better. Is a diagnosis of subacute bacterial endocarditis justified? If so, what antibiotics would be suggested?*

M.D., South Dakota.

ANSWER.—Concerning the 11-year-old boy, this consultant believes that a patient with known congenital malformation of the heart and unexplained irregular fever of long duration, a large spleen, and an unexplained anemia should be treated for subacute bacterial endocarditis even in the absence of a positive blood culture. He should have a careful neurological examination to rule out the question of a brain abscess and then should be treated with large doses of penicillin, at least a million units a day for a week. If this ends his fever he should be given a six weeks' course of penicillin in large doses. If the above treatment for a week reduces his fever but does not cure it, the dose should be doubled or tripled and may be increased up to 10 million units per day. If that is successful, treatment with such doses should be given. If it has no effect, erythromycin should be tried, 200 mg. six times a day for a week, and, if that is effective, treatment continued for six weeks.

The answers here published have been prepared by competent authori- They do not, however, represent the opinions of any medical or other nization unless specifically so stated in the reply. Anonymous com- nications and queries on postal cards cannot be answered. Every letter t contain the writer's name and address, but these will be omitted on est.

MYCOSIS

EDITOR:—*In a man 25 years of age the diagnosis of tomycosis was made by tissue examination of two pieces ssue taken from his back and buttocks in September, 1954. a while he had a cough, with some sputum, and had r for two months. X-ray examination of the chest showed ea in the left hilus the size of a 25-cent piece. The last y, taken Jan. 22, was negative. This patient has gained ght, has no fever, and does not cough or spit up. He was ted with saturated solution of potassium iodine. He took drops three times a day for four months and is now taking drops three times a day. What tests can I give to this man etermine if he is free of blastomycosis?*

Wallace D. English, M.D., Cardwell, Mo.

NSWER.—In blastomycosis, as in any other infectious loma, such as tuberculosis or syphilis, it is impossible to mine whether the patient does or does not harbor living -organisms after clinical cure has been achieved. In the of blastomycosis, one obtains the best orientation from complement-fixation test. For technique, specificity, and see Conant and others (Manual of Clinical Mycology, hia, W. B. Saunders Company, 1954). If the test is ve, treatment can be discontinued because negative com- -fixation test indicates inactivity of the disease. However, tient should remain under observation for many years, and complement-fixation test should be repeated periodically. blastomycin skin test usually remains positive after clinical like the tuberculin test in tuberculosis. It has been found a positive skin test combined with a negative complement- tion test is a prognostically favorable sign.

TO OBTAIN SERUM FROM CLOTTED BLOOD

THE EDITOR:—*A blood sample withdrawn from a young regnant woman clotted solidly as soon as it was transferred rom the syringe to a glass tube. There was no separation hatsoever of serum from the clot. The laboratory reported hat no readings could be taken. On a second sample an tempt was made to separate serum from clot by centrifugation after refrigeration but to no avail. Can you suggest a ethod for obtaining a serum sample to be used for blood type, Rh, and serology tests?*

Thomas N. Geracioti, M.D., Spencer, Ohio.

ANSWER.—After the blood has clotted, gently rim the clot th an applicator stick and centrifuge at high speed. This may ve to be repeated once or twice but should provide serum for ood type, Rh, and serology tests. If necessary the tests can performed on oxalated blood by washing the cells with line solution. A platelet count should be done, as a thrombo- topenia may account for the absence of clot retraction. If y, blood may be drawn in siliconized syringes and in- into siliconized tubes, centrifuged, and then allowed to at room temperature or in the refrigerator for approxi- tely two hours, at which time the blood will clot.

ARBON TETRACHLORIDE POISONING

O THE EDITOR:—*Has carbon tetrachloride poisoning, either chronic or acute, ever been proved to cause any type of insanity or mental disturbance?*

John T. Bate, M.D., Louisville, Ky.

ANSWER.—Prolonged psychotic states are rare as a result of n tetrachloride poisoning and perhaps do not occur at all. Neurological damage is more in evidence chiefly from damage to the optic nerve. However, in acute intoxication from carbon tetrachloride many mental symptoms have arisen and, in fact, are quite commonplace. In his book "Poisoning" (New York, Paul B. Hoeber, Inc., 1952) von Oettingen states the situation: "Acute carbon tetrachloride poisoning is dominated by symptoms from the central nervous system. The patient suffers from dizziness, inebriation, mental confusion, nervousness, and, less frequently from loss of memory. He may become delirious and suffer from convulsive seizures. Finally he becomes unconscious, stuporous, and comatose. In prolonged poisonings peripheral neuritis may develop with pareses, paresthesias, anesthesias, and tremors. The reflexes may be exaggerated or decreased. Vestibular disturbances may be present. Not infrequently the vision is blurred and there may be diplopia, amblyopia, and amaurosis."

FETOR HEPATICUS

TO THE EDITOR:—*Please describe fetor hepaticus. Is it usually accompanied by excessive dryness of the mouth?*

Arthur R. Timme, M.D., Los Angeles.

ANSWER.—To describe a smell in words is possible only by the use of analogy. This is of little help if the reader is not familiar with the odor to which fetor hepaticus is compared. Descriptions one finds in medical writings include the terms "rancid," "sour-sweet," "pungent," "like the smell of new mown hay," and perhaps the most remarkable is likening the smell to that of a nest of mice freshly turned up in a barn. The fact remains that to describe color to the colorblind, or music to the tone deaf, or fetor hepaticus to someone who has never smelled it is a literal impossibility. The material responsible for this odor is probably a complex chemical compound of the piperidine group. The smell is very nearly like but not identical with the odor of α-methylpiperidine. This material is found in high concentration in the urine of patients with severe parenchymal liver disease who have fetor hepaticus, less often in the urine of patients with obstructive jaundice. In fact it occurs in normal urine but in very much smaller amounts than in urine from patients who exhibit fetor hepaticus clinically. Fetor hepaticus is not usually or frequently associated with excessive dryness of the mouth. Such dryness may result from mouth breathing in patients who have coma along with fetor.

REACTION TO HORSE SERUM DURING PREGNANCY

TO THE EDITOR:—*Is there any evidence that a serious reaction to horse serum and the treatment of this with 200 mg. of cortisone daily for five days would have deleterious effect when occurring during the first month of pregnancy?*

M.D., California.

ANSWER.—Serious serum reactions have occurred in pregnancy without adversely affecting the fetus. Cortisone has been administered in amounts of 200 mg. daily for longer periods than five days in pregnancy without apparent harm to either the mother or fetus.

VISUAL LOSS FOR COMPENSABLE EYE INJURIES

TO THE EDITOR:—*The first part of the answer to Dr. Holohan's query in* THE JOURNAL, *April 9, 1955, page 1360, reveals a striking disparity in current evaluations of the Snellen notation and points up anew the need for a sound and equitable procedure for the solution of this problem. Having in earlier communications outlined the rationale establishing the Snellen symbol as inherently a true fraction, to arrive now at the actual measure of the intrinsic values connoted by the Snellen visual expression one must recognize that by the very nature of things it is not the fraction, i. e., visual angle itself, being dealt with, as set forth in the depicted table, but instead the subtended surface area of this fraction or angle. The principle of construction of the Snellen symbol is two-dimensional, the projected test object having height and width of equal size, viz., all four sides subtended by the same visual angle in minutes of arc; hence, in the final analysis, concern obviously is with the value of the area of some specific square, either that of the whole or of a related part. When given, then, as previously shown, any one dimension or aliquot part thereof squared, the resulting figure will represent the value sought. The evolution of an objective formula, such as this, is sound and correct, and a visual efficiency rating based on the square and not the linear unit as the determinant of Snellen visual values is, besides, a valid and appropriate concept.*

J. A. C. Gabriels, M.D.
485 Western Ave.
Albany, N. Y.

BLASTOMYCOSIS

To the Editor:—*In a man 25 years of age the diagnosis of blastomycosis was made by tissue examination of two pieces of tissue taken from his back and buttocks in September, 1954. For a while he had a cough, with some sputum, and had fever for two months. X-ray examination of the chest showed an area in the left hilus the size of a 25-cent piece. The last x-ray, taken Jan. 22, was negative. This patient has gained weight, has no fever, and does not cough or spit up. He was treated with saturated solution of potassium iodine. He took 90 drops three times a day for four months and is now taking 60 drops three times a day. What tests can I give to this man to determine if he is free of blastomycosis?*

Wallace D. English, M.D., Cardwell, Mo.

Answer.—In blastomycosis, as in any other infectious granuloma, such as tuberculosis or syphilis, it is impossible to determine whether the patient does or does not harbor living micro-organisms after clinical cure has been achieved. In the case of blastomycosis, one obtains the best orientation from the complement-fixation test. For technique, specificity, and literature see Conant and others (Manual of Clinical Mycology, Philadelphia, W. B. Saunders Company, 1954). If the test is negative, treatment can be discontinued because negative complement-fixation test indicates inactivity of the disease. However, the patient should remain under observation for many years, and the complement-fixation test should be repeated periodically. The blastomycin skin test usually remains positive after clinical cure, like the tuberculin test in tuberculosis. It has been found that a positive skin test combined with a negative complement-fixation test is a prognostically favorable sign.

HOW TO OBTAIN SERUM FROM CLOTTED BLOOD

To the Editor:—*A blood sample withdrawn from a young pregnant woman clotted solidly as soon as it was transferred from the syringe to a glass tube. There was no separation whatsoever of serum from the clot. The laboratory reported that no readings could be taken. On a second sample an attempt was made to separate serum from clot by centrifugation after refrigeration but to no avail. Can you suggest a method for obtaining a serum sample to be used for blood type, Rh, and serology tests?*

Thomas N. Geracioti, M.D., Spencer, Ohio.

Answer.—After the blood has clotted, gently rim the clot with an applicator stick and centrifuge at high speed. This may have to be repeated once or twice but should provide serum for blood type, Rh, and serology tests. If necessary the tests can be performed on oxalated blood by washing the cells with saline solution. A platelet count should be done, as a thrombocytopenia may account for the absence of clot retraction. If necessary, blood may be drawn in siliconized syringes and injected into siliconized tubes, centrifuged, and then allowed to stand at room temperature or in the refrigerator for approximately two hours, at which time the blood will clot.

CARBON TETRACHLORIDE POISONING

To the Editor:—*Has carbon tetrachloride poisoning, either chronic or acute, ever been proved to cause any type of insanity or mental disturbance?*

John T. Bate, M.D., Louisville, Ky.

Answer.—Prolonged psychotic states are rare as a result of carbon tetrachloride poisoning and perhaps do not occur at all. Neurological damage is more in evidence chiefly from damage to the optic nerve. However, in acute intoxication from carbon tetrachloride many mental symptoms have arisen and, in fact, are quite commonplace. In his book "Poisoning" (New York, Paul B. Hoeber, Inc., 1952) von Oettingen states the situation: "Acute carbon tetrachloride poisoning is dominated by symptoms from the central nervous system. The patient suffers from dizziness, inebriation, mental confusion, nervousness, and, less frequently from loss of memory. He may become delirious and suffer from convulsive seizures. Finally he becomes unconscious, stuporous, and comatose. In prolonged poisonings peripheral neuritis may develop with pareses, paresthesias, anesthesias, and tremors. The reflexes may be exaggerated or decreased. Vestibular disturbances may be present. Not infrequently the vision is blurred and there may be diplopia, amblyopia, and amaurosis."

FETOR HEPATICUS

To the Editor:—*Please describe fetor hepaticus. Is it usuall accompanied by excessive dryness of the mouth?*

Arthur R. Timme, M.D., Los Angeles

Answer.—To describe a smell in words is possible only b the use of analogy. This is of little help if the reader is un familiar with the odor to which fetor hepaticus is compare Descriptions one finds in medical writings include the term "rancid," "sour-sweet," "pungent," "like the smell of new mow hay," and perhaps the most remarkable is likening the smell t that of a nest of mice freshly turned up in a barn. The fac remains that to describe color to the colorblind, or music t the tone deaf, or fetor hepaticus to someone who has nev smelled it is a literal impossibility. The material responsible f this odor is probably a complex chemical compound of th piperidine group. The smell is very nearly like but not identic with the odor of α-methylpiperidine. This material is foun in high concentration in the urine of patients with sever parenchymal liver disease who have fetor hepaticus, less ofte in the urine of patients with obstructive jaundice. In fact i occurs in normal urine but in very much smaller amounts th in urine from patients who exhibit fetor hepaticus clinicall Fetor hepaticus is not usually or frequently associated wit excessive dryness of the mouth. Such dryness may result from mouth breathing in patients who have coma along with fetor.

REACTION TO HORSE SERUM DURING PREGNANCY

To the Editor:—*Is there any evidence that a serious reactio to horse serum and the treatment of this with 200 mg. o cortisone daily for five days would have deleterious effect when occurring during the first month of pregnancy?*

M.D., California.

Answer.—Serious serum reactions have occurred in pregnancy without adversely affecting the fetus. Cortisone has been administered in amounts of 200 mg. daily for longer periods than five days in pregnancy without apparent harm to either th mother or fetus.

VISUAL LOSS FOR COMPENSABLE EYE INJURIES

To the Editor:—*The first part of the answer to Dr. Holohan's query in* The Journal, *April 9, 1955, page 1360, reveals a striking disparity in current evaluations of the Snellen notation and points up anew the need for a sound and equitable procedure for the solution of this problem. Having in earlier communications outlined the rationale establishing the Snellen symbol as inherently a true fraction, to arrive now at the actual measure of the intrinsic values connoted by the Snellen visual expression one must recognize that by the very nature of things it is not the fraction, i. e., visual angle itself, being dealt with, as set forth in the depicted table, but instead the subtended surface area of this fraction or angle. The principle of construction of the Snellen symbol is two-dimensional, the projected test object having height and width o equal size, viz., all four sides subtended by the same visua angle in minutes of arc; hence, in the final analysis, concern obviously is with the value of the area of some specific square, either that of the whole or of a related part. When given, then, as previously shown, any one dimension or aliquot par thereof squared, the resulting figure will represent the value sought. The evolution of an objective formula, such as this, is sound and correct, and a visual efficiency rating based on the square and not the linear unit as the determinant of Snellen visual values is, besides, a valid and appropriate concept.*

J. A. C. Gabriels, M.D.
485 Western Ave.
Albany, N. Y.